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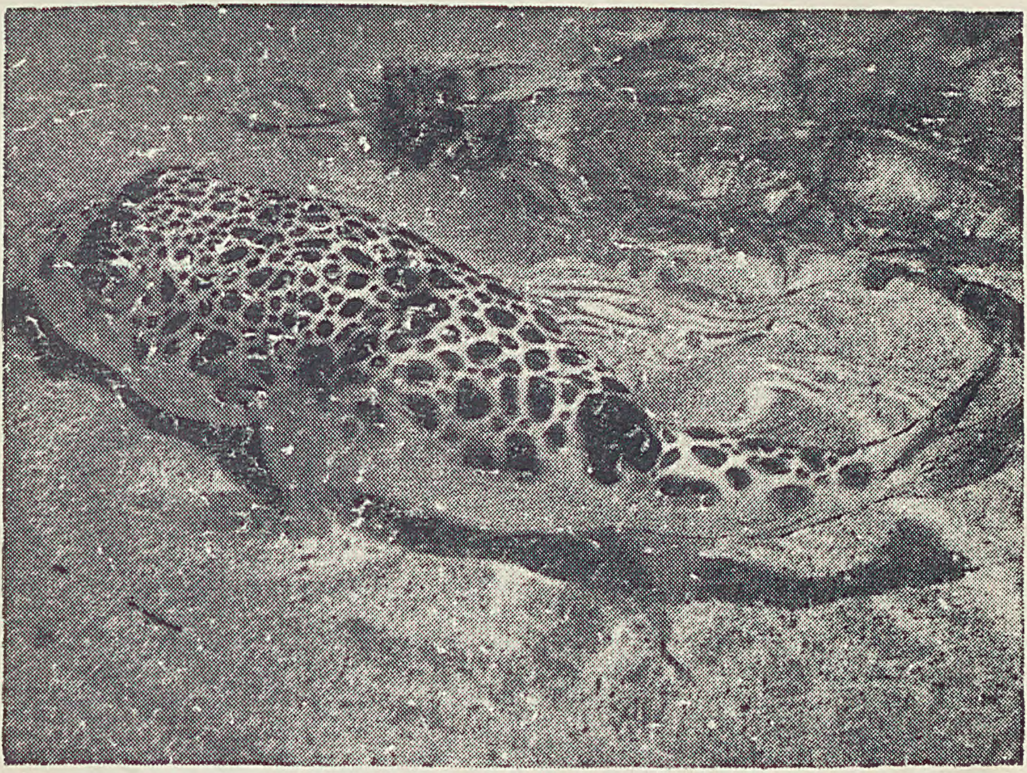
Journal of the Geelong Field Naturalists Club



TOADFIISH

Hon. Editor: Trevor Pescott

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The Statements and the opinions contained in the papers published in this Journal are the responsibility of the respective authors.

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COVER PHOTOGRAPH:

Toad-fish in a rock pool at Lorne.

By D. King.

GEELONG NATURALIST

EDITORIAL

Vol.7. No.1. May 1970.

Geelong, as a basically industrialised city with a population of nearly 120,000 people and only 40 miles from the State capital city, urgently needs the creation of more and larger reserves close to its boundaries; no longer do the local beaches and bushland cater for Geelong residents alone, for most of the western half of Melbourne must find recreation in the Geelong region.

Combined, the You Yangs, Steiglitz area, Anglesea and Bellarine Peninsula are the most accessible open spaces not just for our 120,000 but for perhaps 10 times this number when Western Melbourne, Werribee, Geelong and Colac are considered.

This presents a rather horifying picture, for already all of the accessible open spaces are hopelessly choked with crowds in all but the most undesirable weather; and the demands on passive as well as active recreation areas spirals.

Recently two new reserves were dedicated by the Forests Commission - these were over 500 acres at Bannockburn, representing most if not all of the land available there, and 7000 acres at Aireys Inlet.

The Angahook Forest Park at Aireys Inlet was rather a disappointment for we need a much larger tract of land permanently reserved in that eastern end of the Otways. However, it is felt that this reserve is a good start, the foundation stone of a truly excellent Park; representation by this Club and others may successfully have added many more acres of urgently needed forest to the reserve.

A "Case" for the inclusion of several adjacent Crown Land areas has already been suggested, and we can look forward within the next few months to this being presented to the appropriate authority. In the meanwhile, we have the Inverleigh Common, Edwards Point, Hargreaves Paddock and a 300 acre block near the Eumeralla Scout Camp already "in hand" as far as Case presentation is concerned.

TREVOR PESCOTT - Hon. Editor.

THE CRUEL PLANT

By Geoff W. Carr

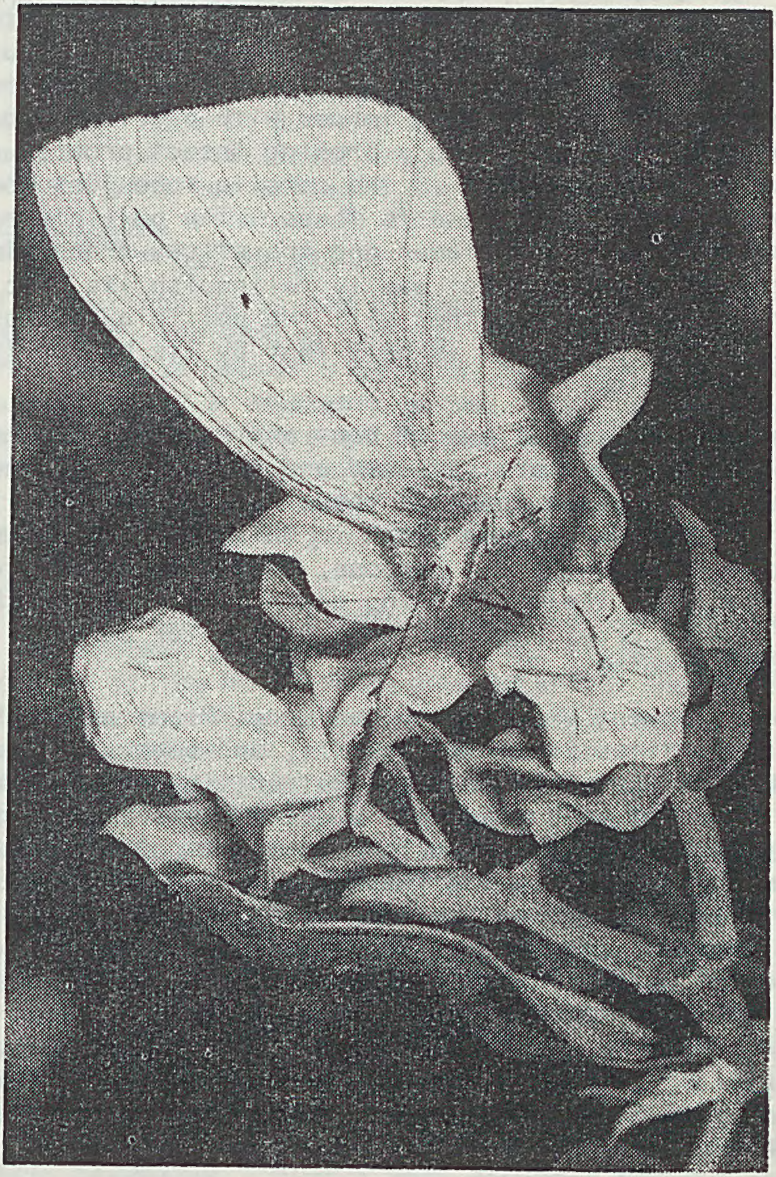
Botanical novelties emanate from all corners of the globe and not least Australia. However, one that attracts attention during summer at the Geelong Botanical Gardens is from another continent, and that, South America. It is the Cruel Plant, Araujia hortorum, sometimes also called the Moth Plant.

Araujia hortorum is a member of the family Asclepidaceae and is a woody twining shrub capable of growing to a height of ten feet or more. Both leaves and stems contain a milky juice in common with most other members of the family. Its leaves are broadly ovate, acuminate and truncate at the base (roughly triangular), entire on short petroles and glaucous, up to four inches long and two inches broad. They are whitish or grey beneath.

The flowers number one to eight (usually two or three), in axillary cymes. There are five sepals, each measuring 3/8 inch long and erect, about half as long as the petals which are joined for more than half their length to form a corolla tube with five spreading lobes about 3/4 inch across when expanded. The corolla tube is dilated at the base and is white, or white with pink stripes.

One interesting feature of this plant is the sexual parts of the flowers, and like other members of the family, have the male and female parts - androecium and gynaecium respectively - united to form a gynostegium, a special arrangement to assist in pollination. Five anthers are arranged around a central united styles and are joined to these. Hood-like appendages of the short staminal filaments collectively form a process called a corona after its resemblance to a crown. The two superior united carpels (the ovary) are thus enclosed and invisible behind the corona. Unlike most plants, the pollen of the anther lobes is consolidated into two rather hard masses called pollinia. These pollinium are joined to each other by a peg-like process called a translator and the pollinia are pendulous, one on each side of the hood-like corona segment.

So this specialized mechanism is ready to receive a visit



Flower of Cruel Plant and Cabbage White Butterfly.

Photo by Trevor Pescott.

THE CRUEL PLANT (Cont'd.)

from the right insect pollinating agents, and those attracted by a scent and a copious nectar flow should be able to carry away the two connected pollinia to other flowers, thus affecting pollination. But this does not happen quite so easily. The translators are imbued with a sticky substance so that they will adhere to a probing insect probiscus, which because of a constriction in the corolla tube just above the corona must pass very close to these. The pollinia are quite firmly attached to the stamen and the sticky translator is so effective that it will not easily relinquish its grip on an insect probiscis and neither will the pollinia relinquish theirs: thus the insect is held fast by its proboscis stuck to the translator.

Perhaps certain conditions of heat and humidity are necessary before the pollinia are released and borne away by the insect, and tropical America supplies these conditions; but it certainly does not happen often in this climate, and the mechanism defeats its own purpose, serving only to trap and hold insects to their lingering death. This is why the plant is called the Cruel Plant or Moth Plant, for part of its prey consists of moths.

The most frequent visitors to our Cruel Plant are Cabbage White Butterflies, small black ants, and bees. Bees are seldom caught but Cabbage White Butterflies are far more often caught than not, and when they visit flowers they are held by their proboscis which is as long as the corolla tube, and after much futile flapping they die, taking about two days to do so. They then swing in the breeze till they disintergrate or are eaten by spider-like harvest-men, the so called "daddy-long-legs", on their nocturnal forays. The tiny black ant ascend the stems of the plant in their ramblings and, bent on drinking, find themselves held by the angled antennae. They largely visit flowers nearer the ground and are not much bigger than the pollinia. Such insects are clearly not the natural pollinating agents.

Lepidoptera, almost surely the natural pollinating agents, in view of the large number attracted, include nocturnal and diurnal moths which are also often caught. Robust hawk-moths with pink hind wings have been seen caught in the mornings

THE CRUEL PLANT (Cont'd.)

after their fatal night flight and tethered by their body-length tongue, they hover and gyrate until death, suspended then like exotic, ornate pendulums. One day a Wanderer was caught and held fast, until it was released. Other members of the genus Araujia, and probably this species too, are natural food plants of the Wanderer or Monarch Butterfly, but larvae have never been observed on the Cruel Plant despite numerous butterflies and a total lack of other suitable plants. The Swan Plant, Asclepias fructicosa, chief local food plant of the Wanderer is also a member of the Asclepidaceae.

On one dull summer day we pulled 61 Cabbage Whites from flowers of the Cruel Plant, indicating perhaps that it would be a useful plant for the brassica grower plagued by this insect curse, and several planted around a vegetable garden might destroy a number of butterflies. The few butterflies that escape the flowers can be seen with the pollinia attached to the near end of the proboscis, and on visiting another flower, the pollinia should be deposited on the erect stigma, the first object met with inside the corolla tube.

The Cruel Plant comes from a warm climate, and has long been cultivated in European glass-houses. It was listed by the notable director of the Royal Melbourne Botanical Gardens, William Guilfoyle, as being grown there in 1883 in his Catalogue of Plants under Cultivation in the Melbourne Botanic Gardens under its synonym Physianthus albens. The plant is listed in European horticultural literature as coming from Beunos Aires, but this was no doubt the port from which it was shipped to Europe, and surely has a wider distribution than Argentina because it is such a successful species, producing abundant seed which is readily dispersed. If the flowers are fertilized and coldness does not prevent their development, the bi-carpellary ovary grows into a large green fleshy follicle up to 4½ inches long and 2½ inches thick, clearly divided into two halves and longitudinally furrowed. This fruit splits to reveal a mass of brown seeds, a wonder of economical packing, with a long tuft of fine silky hair at one end by which they become readily windborne. Plants have appeared as much as 500 yards from the parent, and seeds germinate round about in great proliferations, growing rapidly during the warm weather. In Sydney the plant is a weed of waste ground, and no wonder! The plants commence flowering here in late October and bloom until curtailed by cold weather in May.

THE DUNLIN: A NEW WADER FOR THE GEELONG DISTRICT

By Fred T.H. Smith.

On October 5, 1969, Mr. Rod Sympson and I spent a day bird-watching about the Melbourne and Metropolitan Board of Works Farm, Werribee; of particular interest to us were the waders which abounded there. Towards the end of the day after visually examining thousands of birds, we were looking at a small group of sandpipers on the muddy edge of the Little River, near the north end of Lake Borrie, when a Dunlin (Erolia alpina) was seen; it was in company with a few Curlew Sandpipers (E. ferruginea) and Sharp-tailed Sandpipers (E. acuminata).

The bird was observed in detail from close range, with binoculars, for over an hour, during which time all identification features were clearly noted. The Dunlin was in the greyish non-breeding plumage as were the Curlew Sandpipers near it. The Dunlin is a great rareity in Australia and Victorian records of it are limited to about half a dozen sightings. It is a bird that can be easily overlooked, as it closely resembles the Curlew Sandpiper. The main point of difference, in non-breeding plumage, is that the Curlew Sandpiper has all white upper-tail coverts, whilst the Dunlin has a wide dark line running through that area from rump to tail tip. The Dunlin is an abundant migratory wader in other parts of the world, and breeds right across the north of the Northern Hemisphere; the species occurs in a number of races. The bird seen at Werribee by Rod Sympson and me was equally as large as a Curlew Sandpiper, which probably placed it as Erolia alpina sakhalina; possibly the largest of the Dunlin races. The race sakhalina breeds from north-eastern Siberia through Arctic North America and that vicinity. This is a new species for the Geelong District.

Reference: Smith, Fred T.H. "Waders of the Geelong District" Geelong Naturalist Vol. 6, No. 3, November 1969. pp. 66-75.

* * * * *

FERNS OF THE DISTRICT - PART I

By E.G. Errey

My boyhood memories clearly bring to mind three different types of ferns. There was, of course, the Bracken Fern, never far away even in old-established farming districts, and very much in evidence on every visit to "the bush".

The giants of the family were the Tree Ferns. We didn't realise then that there were various species - I have difficulty enough even now to separate them.

But the favorite was always the Maidenhair, growing shyly in the protection of a bank or fallen log, often when other vegetation had been cleared from its neighborhood.

As we leave our early years behind us, we extend our journeyings, and mine led me to a closer experience with our bush flora along the creeks and gullies of South Gippsland where ferns of all sizes abound. Visits to such places as Bulga Park and the Erskine River provided further evidence of the great variety of fern types we have in the cool damp recesses of our forests.

But habitats like these are not the only situations where ferns are to be found. Several genera flourish in open and comparatively dry places. Two of these, Rock Fern and Screw Fern, that grow in various parts of the Geelong district, are described in this article.

Before going into details of these, some general characteristics of ferns might be mentioned.

Tree Ferns develop a sturdy trunk, in some kinds short and thick, in others slender and frequently many feet tall. Other ferns develop creeping stems, or rhizomes, from which fronds arise at intervals either singly or in clusters. So in reality, all we see of most ferns is the foliage. Usually the creeping stems are hidden. It is this feature that makes the eradication of Bracken Fern so difficult. Ploughing reburies most of the rhizomes, which continue growing in loosened soil. Fire appears to rejuvenate the pest. The most effective method of control seems to be to weaken the plants by continual cutting of the fronds as they appear.

In ground-dwelling species the rhizomes travel through the soil, but many ferns grow on rotting logs or creep along tree fern

At Left - Screw Fern.
At Right - Barren frond of Rock fern.
Sketches by E.G. Errey.

Centre - Expanding frond of Bracken fern.
Photo by Trevor Pescott.

FERNS OF THE DISTRICT (Cont'd.)

trunks whose fibrous surface provides such an easy roothold and retains so much moisture. In such cases the rhizomes may be hidden by mosses, lichens or the fibres of the trunk. But quite often, especially in damp shaded gullies they can readily be seen clinging securely to tranks of Hazel, Pittosporum, Myrtlebeech or other denizen of the forest.

As ferns are non-flowering plants they have no seed. They increase partly by the creeping rhizomes and partly by microscopic spores produced in spore cases usually found on the under side of mature fronds. Some genera, Screw Ferns and Water Ferns for example, develop separate fertile fronds to produce spores. All fern fronds first appear coiled like a watch-spring and gradually unroll as they grow.

Of the two species mentioned earlier, the Rock Fern is perhaps more often seen locally. It is widespread in Victoria, and plentiful on the You Yangs. Granite country seems particularly suitable for it is found also at the Dog Rocks near Batesford. It grows, too, in open forest around Bannockburn.

Fronds up to a foot in height grow in small clusters. The stipes, or frond stems, are fine, hard and reddish brown. Their length, and the denseness of individual fronds, appear to vary according to the soil and the moisture available.

Rock Fern makes a fine pot-plant, but, as all ferns apart from Bracken are protected by law, they should not be collected without permission.

Not so fernlike in appearance is the Screw Fern, also widespread in Victoria, and growing freely in damp sandy areas of the Anglesea district. This plant is often hidden in the grass of open bushland, and as it is only a few inches high it is often overlooked. The fronds are unbranched, and the three-sided pinnae, yellowish green in colour are attached by one corner to the wiry brown stipes. Fertile fronds rising among the barren ones are taller and more upright. The pinnae are smaller than on the barren fronds, and by their twisted arrangement, give the plant the screwlike appearance that suggests the name.

* * * * *

CLOUDS

By L. Elms

Of the hundreds of items of Natural History which have been available for our use and enjoyment since our earth was first created, it is well worth while to take a little time now and then to study the clouds, and note their shape, color, height and movements.

Clouds comprise masses of water vapour in various forms which encircle the globe, and upon which we are dependent for our rainfall to maintain human, plant, and animal forms of life on this earth of ours. It is amazing to contemplate that some hundreds of tons of water are circling around over our heads continuously in the form of a vapour produced by the influence of heat from the sun on masses of water.

When we read in the local paper that:- "There was a net gain of 32 million gallons in Geelong Water Storages in the past 24 hours", - it is staggering to think that this means there had been many hundreds and hundreds of tons of water floating over our heads in the form of clouds, which ultimately condensed when meeting cold conditions, and fell as rain.

The only form of clouds which are really tangible to us are the fogs which we encounter occasionally at ground level when humidity is high, and a cold change develops.

Above this ground level, the STRATUS clouds range up to elevations of about 3,500 feet, above which are found the dark NIMBUS rain clouds of stormy appearance, up to altitudes of about 7,000 feet. Above these again are the streaky STRATO-CUMULUS clouds capped by the CIRRO-STRATUS, and the CIRRO-CUMULUS clouds to heights of 29,000 feet - (5½ miles).

The highest of all the clouds are the "CIRRUS", which are of a beautiful dappled appearance, and are an indication of fine weather. The height of these ranges from 27,000 feet to 50,000 feet - i.e. 5 miles to 9½ miles high. They are so cold at this height that they comprise a mist of minutes ice specks, which results in them developing a feathery appearance.

Particularly in the Autumn it is a lovely scene to watch the clouds colored by the setting sun. Also CUMULUS clouds, backlighted by the moon at night present a beautiful picture

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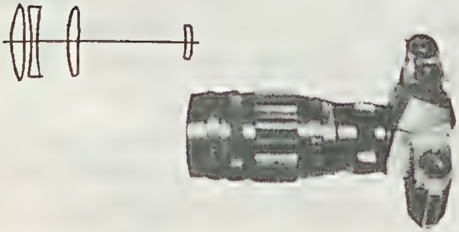

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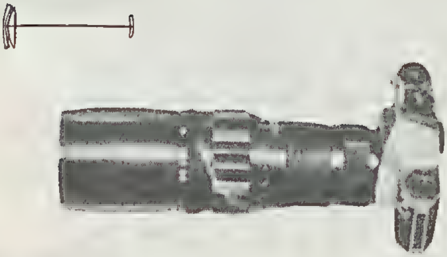

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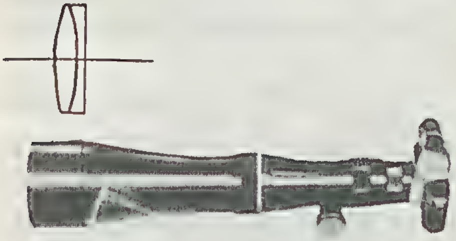

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CLOUDS (Cont'd.)

to behold.

In general, one of the most beautiful series of colored pictures which has ever been bestowed upon us, is to be seen by getting out of doors and studying the lovely cloud effects, which combine with the sunlight, the moon, and the stars, to create a scene which is most bright and beautiful.

*   *   *   *

MOGGS OR BELLBIRD

By Trevor Pescott

There is some doubt as to the correct name of the watercourse we know generally as Moggs Creek. Some early maps showed it as Bellbird Creek, and this name is shown again on a recent Military Map of that area.

While the historians deive back into past records to establish the original name, ornithologists are more occupied with the reason for the name Bellbird, since locally we do not have Bellbirds or Bell Miners - and probably we never had them.

So why Bellbird?

Obviously, the explorer who named the Creek thus heard some bird with a bell-like song calling from the bush above the Creek.

My personal observations in relation to birds with bell-ringing notes are as follows:
Spotted pardalote - Some years ago, one hot summer noon, I heard several of these birds at the You Yangs, and the melancholy call of "Sleep....baby" caused me to turn sharply expecting to see Bell Miners. In my inexperience then, I did not know the Bell Miner would not inhabit You Yangs type country. Crimson Rosella - Just last month, I noted in my field book that several of these birds had a call very like the Bell Miner as well as other notes. Pied Currawong - The name "Bell Magpie" alludes to the call, for the ringing call "Curra-wong Curra-wong" is a sound which is familiar to all who visit the Otways and other mountainous areas. Crescent Honeyeater - This bird, too, has loud ringing notes, but its call lacks the bell-like tenor of the previous species.

HUMAN ACCEPTANCE - TAMENESS OF FLYCATCHERS

By Jack Wheeler

Two recent instances of extreme tameness in birds at breeding time involve two different but closely related species, the Grey Fantail and the Rufous Fantail.

The first came to my notice when Mr. Eric Bound of Ocean Grove demonstrated to me how he could stroke a sitting Grey Fantail under the chin with such regularity, that it was just as if it was a bird reared in captivity and was used to human company; this was not so of course, as the bird was completely in its wild state, yet showed no signs whatever of any discomfort or fright at human approach, nor was Eric Bound the only privileged one, for anyone who approached carefully could enjoy the same treatment.

The nest was built in a sapling, no more than four feet above ground level, and was approximately 25 feet from the edge of a busy roadway, known as Shell Road, linking Ocean Grove with Point Lonsdale. This constant activity of vehicles within sight of the nest may be said to have some influence on this bird's tameness, but in the second case of similarity, the birds involved would have little or no contact with human environment.

The Grey Fantail's nest contained three eggs at the time of my visit and as far as is known was a successful nesting.

My second story of this nature is much further afield than Ocean Grove and actually took place high up near the summit of Mt. Cole, at approximately 3,000 feet above sea-level. Mt. Cole is situated ten miles north-west of Beaufort and dominates the skyline north of the Western Highway between Beaufort and Buangor.

Visiting there on New Years Day last, I observed a lone Rufous Fantail near the Victoria Mill Scenic Reserve, but approaching rain and fog prevented further investigation as to breeding so next day I passed the information on to Mr. & Mrs. Laurie Millar of Beaufort. This is their story - "It is over two years since we found our first Rufous Fantails at Mt. Cole - a breeding pair with two fledglings. This was a thrill and at the same time a disappointment to us, as these beautiful birds were out of the nest and therefore past the stage for photography.

"Since that occasion we have searched carefully each season in

TAMENESS OF FLYCATHERS (Cont'd.)

the hope of finding another pair breeding but without success until early this year when Jack Wheeler gave us the locality of a bird which he thought could be breeding on Mt. Cole.

"Our first opportunity to follow up this information was not until Australia Day, January 26th., and being accompanied by talented nest finder, Mr. Ivan Tiley also of Beaufort, it wasn't long before we had our first bird in sight, and by checking a very attractive fern gully, soon had two birds in view. Both birds did wing fluttering, the true 'broken-wing' act, and this was a sure sign of breeding; in a matter of minutes, Ivan had the nest in view, a lovely structure delicately placed on a dry branch of an Austral Mulberry tree (Orangewood) - Hedycarya angustifolia. The nest was no more than 4'6" above the stream beneath, a delightful nesting site for delightfully attractive birds such as these Rufous Fantails.

"On closer inspection we found that the nest was composed of very fine threads of bark and dry grasses bound firmly with cobwebs and lined with fine fern rootlets. There was only one nestling, no more than two days old.

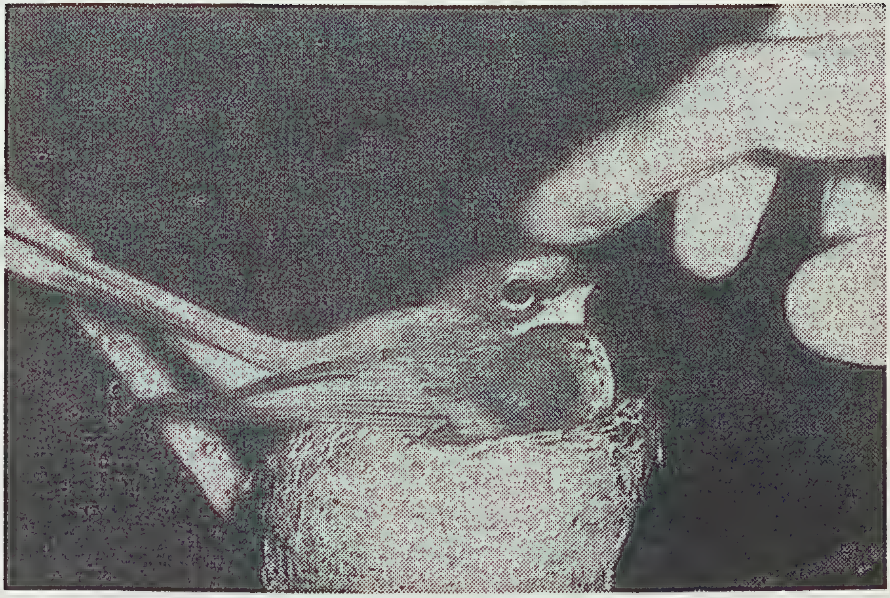
"Immediately we approached close to the nest, one adult bird flew in to cover the chick, and although we moved about freely, she paid no attention and went about other chores of feeding the youngster as if we were not present.

"What a subject to photograph and what a predicament, the 'flash' apparatus had 'packed up'! Nothing could be done, so reluctantly we left.

"However, we came back next morning at 6.00a.m. with a borrowed 'flash' and were able to take our pictures. Somehow on that wonderful morning and at that hour, the two Rufous Fantails looked even more beautiful - the brown of the bird being a perfect foil for the touches of black and white, whilst the rich rufous at the base of the tail feathers shone out in perfection, particularly when the tail was completely fanned out.

"The climax came when we were close enough to touch the bird sitting on the nest, and stroke her we did, not once but several times,and what a thrill to find this wild creature so

TAMENESS OF FLYCATCHERS (Cont'd.)



Rufous Fantail

Photo by Laurie Millar

trusting.

"We watched the feeding of the nestling and the parent birds change over. We were present when a small flock of Crescent Honeyeaters invaded the scene, and what a hullabaloo.. these fellows weren't trusted as we were and were given a short shift indeed.

"Our last visit was on February 5th., over a week later, and the parents were still there, with the chick out of the nest, perched high in the nest tree, and able to fly despite its state of plumage far from complete with many pin-feathers still visible.

TAMENESS OF FLYCATCHERS (Cont'd.)

"Now we have to await another season for our favourite Rufous Fantails to return to grace picturesque Mt. Cole, and when they do, we will be wondering if they are those birds which accepted us last season with such trustfulness."

I can only conclude by saying how fortunate we are in Australia to have some 35 species of flycatchers within the Australian region, and most of which I have observed have this same trait of trust as far as humans are concerned.

* * * * *

NEW MUD ISLANDS MAMMAL?

By Trevor Pescott

Last January, as we prepared to break camp after a very enjoyable weekend at Mud Islands, I picked up from the beach a strange, calcareous object.

About 2 inches long, and perhaps 3/4 inches square, it was obviously some part of a marine creature or mammal, although none of us at the time could quite decide what it was, or had been. So I forwarded it to the National Museum in Melbourne for determination; in due course, the reply came back.

The marine object was nothing less than the tooth of - a Horse!

How long it had been in the water, we do not know; nor do we know how it first came to be in the sea.

Were it something more exciting, I would carefully add the species to the very meagre list of mammals found at Mud Islands.

Fur Seal, Common Dolphin, Rabbit, Black rat - this just about sums up the mammalian fauna list; dare I add Equus caballus, Horse?

* * * * *

NIAGARA FALLS

By May Boardman

The Niagara Falls form one of the great wonders of the world. The word "Niagara" comes from the language of the Red Indians and means "Great thundering of Waters". The mighty roar, as the rushing, swirling waters plunge over the drop of about 160 feet, makes one think of continuous thunder and fills one with awe.

The first recorded history of the Falls goes back to the year 1678, when they were sketched by the Rev. Father Louis Hennepin, who spent some time in that area. They are on the Niagara River, which flows from Lake Erie, 572 feet above sea level, to Lake Ontario, 246 feet above sea level, resulting in a fall of 326 feet in the 35 miles of its length. Almost halfway between the lakes, the water comes to the precipitous drop of about 160 feet, which form the great falls of which there are three - the American Falls and the Luna Falls or Bridal Veil, both of which are on the United States side, and the Horseshoe Fall, so named because of its shape, on the Canadian side. As 1,500,000 gallons of water pass over the three falls every second, which means 1 cubic mile of water each week of the year, is it any wonder that the Indians compared the sound to that of thunder?

At the brink, the water is divided by Goat Island, thus causing the diversion of the falls. The magnificent American falls, 167 feet in height, were originally 6 miles downstream, but crumbling rocks have caused them to retreat at a rate of almost 1 foot a year. Thousands of tons of rock fell into the gorge a few years ago, and there has been so much erosion each year that the Niagara Authority, formed in 1879, and consisting of Americans and Canadians, decided to close the American Falls in order to strengthen the cliff face.

So, on June 30th., a few days after we were there, the fall was temporarily diverted, so that the work of strengthening the cliff face could be undertaken. They expect, by the end of the summer, to clear the bed of the stream of the rock and debris, and hope to complete the work and have the water flowing over once more, soon after.

North of the Falls, there are great views of the swirling waters of the Whirlpool, 1754 feet around and 126 feet deep, where the course of the Niagara River turns westward. Blocked by the

NIAGARA FALLS (Cont'd.)

jagged mouth of a glacial channel, it curves back again into the Great Gorge towards Lake Ontario. A Spanish aerocar, suspended by steel cables, takes passengers over the great whirlpool below the Falls. Though the writer did not venture on this exciting journey, her husband did, and enjoyed the ride and the views immensely.

In the winter, the Falls of Niagara take on an altogether different aspect. The freezing spray builds mountains of ice on either side, forming fantastic shapes.

At least two observation towers of great height have lifts to take sight-seers to platforms 500 feet above the Falls. From here wonderful views of the magnificent scenery cannot easily be described.

It causes one no surprise to find that the city of Niagara on the Canadian side has become so popular with tourists who journey there all the year round, or that Buffalo on the American side has become an important air-terminal.

Nearby is the Niagara Parks Horticultural School, where the gardens are beautifully laid out, and where we saw thousands of daffodils and tulips forming what looked like multicolored carpets among the lawns. Here too, as in many other parks in the area, were lilacs of many shades perfuming the air, and peonies, rhododendrons and irisis were in full bloom. Many beautiful flowering trees - the Japanese Cherry blossom tree and the flowering crab tree growing among the soft green of the lawns gave great joy and plenty of practice to the hundreds of photographers who seemed to be standing, camera in hand, everywhere one walked.

The hours sped quickly by, and it seemed only a short time till it was time to again board a bus to Buffalo, where we walked up the gangway to our seats on the plane which took us to New York, from where we flew to London.

* * * * *

A TRIP TO FRASER ISLAND

By J.H. Whitmore

Last year, when on a tour of the east coast of Queensland, my wife and I stopped at Hervey Bay for several days, and whilst there we were told of a trip by motor launch to Fraser Island on which we decided to go. Seeking more information about Fraser Island, we were told about some of its geographical features, and interesting history.

With a length of 77 miles, this island is the largest off the east coast of Australia, and its mountainous sandhills rise to almost 800 feet in height.

There are more than 40 freshwater lakes on the island and the water in these lakes is pure and clear.

Originally known as Great Sandy Island, the name was changed at a later date to Fraser Island, this being after the ordeal of Mrs. Fraser at the hands of the aborigines. Aborigines captured Captain Fraser, his young wife and 10 of the crew, all of whom had survived when the ship "Stirling Castle" was wrecked near the island in 1836. Captain Fraser and four crew members died, and the natives led three other seamen to Brisbane. The Commandant of the Moreton Bay District, Captain Foster Fyans, sent a boat party led by John Graham to search for other survivors. Graham found Mrs. Fraser and the remaining four crew members and they were safely returned to Brisbane. Captain Foster Fyans was later transferred to Geelong to become its first Police Magistrate, this appointment was made on 5th September 1837.

During the journey from Hervey Bay to Fraser Island we passed near the shores of three small islands; on one of these, several goats were noticed grazing and two Red-backed (also known as White-headed) Sea-eagles were seen circling around, only about 100 feet in the air and we were able to obtain an excellent view of them through our binoculars.

On arriving at Fraser Island we all boarded an old four-wheel drive army truck, which was to take us 15 miles over a very narrow,rough sandy track to the other side of the island, a trip that took over 2 hours as the truck was in low gear in many places. The truck was fitted with a frame of strong, round

FRASER ISLAND (Cont'd.)

piping to keep the low branches and high scrub from hitting the passengers on the back of the truck.

The island landscape is of constant interest with its rain forests and large kauri pines.

On reaching the ocean side of the island we were delighted to see a very wide stretch of sandy beach as far as the eye could see. There were many seabirds on the beach, a large flock of Crested Terns, many Curlews, also the Common Sandpiper, Red-necked Stints and Egrets.

On the return trip, we called at a large freshwater lake, where several boys had a swim, and on reaching the beach where we had disembarked from the motor launch in the morning, thousands of soldier crabs were parading. During our return to Hervey Bay several dolphins followed the motor launch for several miles, putting on a great display of diving and swimming around the boat.

Birds seen in the Hervey Bay area included White Ibis, Pied Butcherbird, Royal Spoonbill, Black-backed Magpie, and flocks of up to 40 Magpie larks were counted.

Reference: W.R. Brownhill - "This History of Geelong and Corio Bay"

Brownhill wrote - "Governor Bourke at the request of the squatters in the Geelong area arranged for the transfer of Captain Foster Fyans of the 4th. Regiment from his duties at Moreton Bay (Brisbane) to Geelong to serve as Police Magistrate in Geelong."

This is an interesting connection, between this northern Island, and a man who later became one of early Geelong's most famous personalities.

Recently, a memorial service was held in Geelong to commemorate the 100th anniversary of his death, which occurred on 23rd May, 1870. (See "Geelong Advertiser", Editorial 23.5.1970.)

* * * * *

PORT FAIRY WEEK-END CAMP

By Jack Wheeler

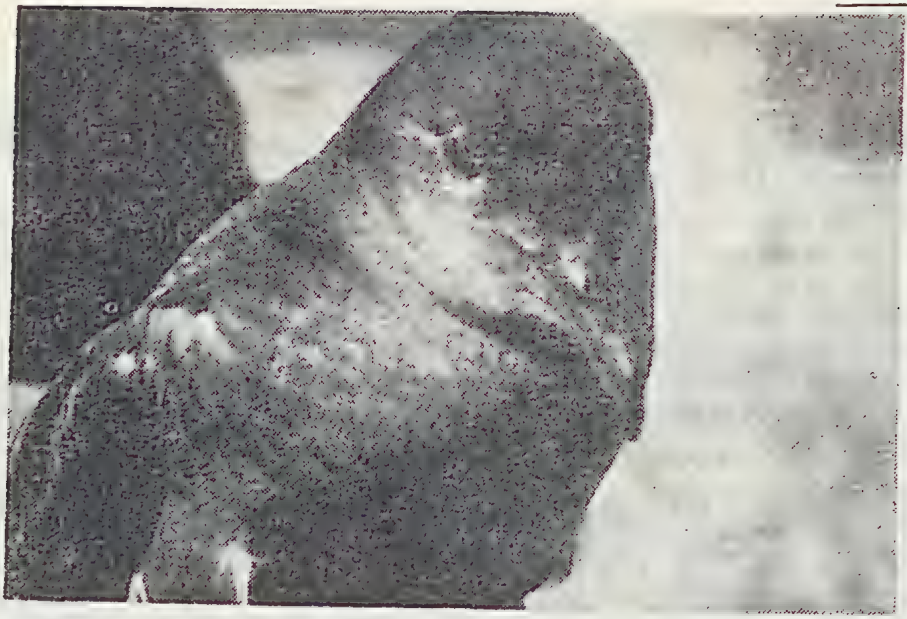
BIRD BANDING ACTIVITIES & VISIT TO TOWER HILL STATE GAME RESERVE 24th-26th April, 1970.

Griffith Island, Port Fairy, with a narrow stone wall linking it to the mainland is well known in ornithological circles as being the most accessible Mutton-bird breeding ground situation in Victorian waters. It is for this reason that banding of Mutton-birds has been going on with seasonal regularity since it was first commenced in 1960 by Miss Gracie Bowker, a retired school-teacher resident at Port Fairy, who each season sets a target of banding at least 2,000 birds.

During the early years of banding Miss Bowker and her helpers worked arduously, night after night, by the pulling method, i.e. pulling the adult or young from the breeding burrow for banding. On the suggestion by Dr. Dom. Serventy, the C.S.I.R.O. convenor of Mutton-bird banding in Australia, the emphasis was later on chick banding and it was found that after the departure from the rookery of the adult birds in mid-April, the 2 to 2½ weeks period prior to the departure of the chicks was a much easier period for banding as chicks left their burrows at night to exercise their wings and to become accustomed to the salt air. Some adults are still banded at certain times during breeding, but the greater majority of birds now banded at Griffith Island are well feathered chicks.

Over the past ten years, Miss Bowker has been assisted by boy scouts, school children, teachers, wildlife officers, naturalists and her own relatives, but it is only those dedicated that regularly assist. Three members of the Geelong Field Naturalists Club over recent years have regularly assisted, Trevor Pescott, Geoff Gayner and myself, and mostly we camped at Miss Bowker's residence. Last year and this year most of the Geelong contingent has camped at camping grounds, in tents, caravans, cabins etc. whilst a few took advantage of motel and guest house accommodation.

This years group of helpers and visitors arrived mostly on Friday, late afternoon and evening, whilst others arrived in time for lunch on the Saturday. Much rain fell in Port Fairy over our weekend period but it did not deter our enthusiasm, and



Short-tailed Shearwater (Muttonbird), showing the double-tubed nostrils - a feature of Shearwaters and petrels.

Photo by J.R. Wheeler.

Muttonbird nesting burrows, Griffith Island, Port Fairy.

Photo by J.R. Wheeler.

PORT FAIRY WEEK-END CAMP (Cont'd.)

even though all did not participate in banding activities, all enjoyed the weekend very much.

Our programme was as follows:
Friday 24th: 8.00p.m. Griffith Island. Two teams operated with Miss Bowker and Jack Wheeler banding. Conditions ideal and birds very plentiful. Quota of 670 birds banded by 12.15a.m. Several rats were seen and Miss Bowker reported a greater mortality of chicks than usual. (Rats mass attack the birds and kill and feed on victims.)
Saturday 25th: Beach walk at 7.30a.m. (Showery conditions). 10.45a.m. Visit to Tower Hill State Game Reserve. (Report of this visit at end of this report.)
4.00p.m. Visited Killarney Beach. Showers and strong south westerlies made conditions unpleasant for beach-walking.
8.00p.m. Griffith Island - Banders Miss G. Bowker, Mr. Trevor Pescott, Mr. Geoff Gayner and Mr. Jack Wheeler. Conditions were ideal for birds which were very plentiful but not so good for operators, and a downpour at about 9.30p.m. drenched most. Banding concluded 11.00p.m. Total birds banded for the two nights - 1377.
Sunday 26th: 10.30a.m. inspection of Port Fairy "Aquarium" stocked by local fishermen. Display of local fish, sharks, octopus, eels, crabs etc. 12.30p.m. Visit to Thunder Point at Warrnambool and inspection of foot print cave. Lunch.
2.00p.m. Departed for Geelong.
(Latest report from Miss Bowker is that a big contingent of young birds departed in heavy storm on Monday 27th April, with heavy seas running. The remainder departed on following nights and were all gone by 2nd May. On Wednesday 29th April Miss Bowker with a group of helpers, disturbed poachers, who left in such a hurry, they left three sacks, one of which contained 24 dead and one live bird. Six of the birds were banded. Fisheries and Wildlife Officers were contacted to search for the offenders.)

Some notable recoveries have been made of Mutton-birds banded at Griffith Island. Recoveries reported at Hokkaido, Japan; Shimizu, Japan; Mito, Japan; Sakhalin Island, U.S.S.R.; and at Sheogama in Japan just three weeks after banding (a distance of 5,100 miles).

PORT FAIRY WEEK-END CAMP (Cont'd.)

Tower Hill State Game Reserve - Koroit:

Our group was met at the entrance by Fisheries and Wildlife Officer Mr. Gavin Cerini. He pointed out the old C.R.B. quarry, 50 yards to the east of the entrance, and here remarkable scoria layers formed during more violent eruptions are to be seen, now being weathered and eroded by wind currents.

At our first stop, an inspection was made of the "Yatt mirng" (aboriginal for white-eye) crater which is 100' deep from the lip, but 190' deep from the highest side. The crater was dry with a whitish scum of salt layer, and this is probably why the aboriginal term, "white eye". The track leading to the lookout here is 323' above sea level and gives an excellent view of the western area of the Reserve.

The Reserve was, prior to settlement of white-man, clothed in natural scrub, but today little of this is left. Of interest were two Wild Cherry saplings growing on the west bank of the rim although there are no nearby eucalypts for parasitisation.

Our main stop for the day was at the Natural History Centre, an imposing building, just completed, of circular shape, glass windowed in entirety with domed roofing coated with attractive scoria chippings.

As yet, no exhibits are on display and this will not be carried out until completion of adjacent buildings.

Mr. Cerini spoke to us in the building itself and outlined plans for display which would include a model of the Reserve, depicting the many points of interest. Mr. Cerini stated that since 1960, some 24,000 trees, many of which were grown by members of the Warrnambool Field Naturalists Club, and all of which are native to the Reserve, had been planted by members of various organisations. Mr. Cerini explained that pines previously planted will be harvested when plantation areas are needed for further planting of native vegetation. Mr. Cerini further stated that duck shooting will continue to be allowed within the Reserve and it must be remembered that work being carried out within the Reserve is largely financed from sales of Game Licences.

PORT FAIRY WEEK-END CAMP (Cont'd.)

Before lunch, the weather cleared and most members undertook the Nature Trail, details of which were provided in pamphlet form. Plants seen along this walk were Musk Daisy-bush, Woolly Tea-tree, Bracken Fern, Kangaroo Apple, Boobialla, Bidgee-widgee, Sweet Bursaria, Beard-heath. Of the trees, Swamp Gum was prevalent on the highest ridge along the Nature Trail, and one fine clump, even though of stunted growth, is natural and it is thought colonised the ridge only after the burnings of the 1860s which devastated and killed the then existing forest. Blackwood and Black Wattle, most of which had been planted were doing quite well as also were the planted eucalypt species of Swamp Gum and Manna Gum.

Extremely windy conditions made bird observing very difficult, with the result our bird list was small. Parties of Blue wrens were noted around the Natural History Centre and the delightful song of the Striated Field-wren was heard to advantage. On the lagoons, Black Swans and Mountain-ducks were very numerous and one group of Royal Spoonbills were noted on the western lagoon. Other groups of ducks were too far away for positive identification. Several Brown Quail were disturbed along tracks.

Following lunch, we motored to the main lookout, making a brief stop to observe water birds and here excellent clumps of Common Reed massed the roadway. The lookout is possibly the highest point, situated on the eastern rim of the main crater and from here a glorious view is obtained of the surrounding countryside, and of course of the whole Reserve itself.

Our final stop was made at the water storage tank where 17 acres of this Reserve is being made available to the local Water Trust, and also to inspect the pollution of a natural spring by waste from a local milk factory. The stench from same was most objectionable and for this polluted water to be allowed to flow into a natural fauna reserve is something which we most certainly must take up with the authorities involved and endeavour to have stopped. From here, we were able to see clearly in the distance three Emus, beyond the north lagoon. They were introduced here and appeared to be doing quite well in natural surroundings of Woolly Tea-tree and tussocks in the western section of the Reserve.

PORT FAIRY WEEK-END CAMP (Cont'd.)

Trees, Shrubs and Plants of Tower Hill Reserve:

As mentioned in this article.

Wild Cherry (Cherry Ballart)	Exocarpus cupressiformis
Pine Tree	Pinus insignus
Musk Daisy-bush	Olearia argophyla
Woolly Tea-tree	Leptospermum lanigerum
Bracken Fern (Common)	Polystichum aquilinum
Kangaroo Apple	Solanum aviculare
Boobialla	Myoporum insulare
Bidgee-widgee	Acaena anserinfolia
Bursaria	Bursaria spinosa
Beard-heath (Coast)	Leucopogon parviflora
Swamp Gum	Eucalyptus ovata
Blackwood	Acacia melanoxylon
Black Wattle	Acacia mollissima
Manna Gum	Eucalyptus viminalis
Common Reed	Phragmites sp.

Bird List of Tower Hill Reserve:

As observed under extremely adverse conditions.

Emu	Dromaius novae-hollandiae
Brown Quail	Synoicus australia
Eastern Swamp-hen	Porphyrio melanotus
Hoary-headed Grebe	Podiceps poliocephalus
Silver Gull	Larus novae-hollandiae
Spur-winged Plover	Lobibyx novae-hollandiae
Royal Spoonbill	Platalea regia
White-faced Heron	Ardea novae-hollandiae
Black Swan	Cygnus atratus
Mountain Duck	Tadorna tadornoides
Nankeen Kestrel	Falco cenchroides
Welcome Swallow	Hirundo neoxena
Grey Fantail	Rhipidura fuliginosa
Flame Robin	Petroica phoenicea
White-fronted Chat	Epthianura albifrons
Striated Field-wren	Calamanthus fuliginosus
Little Grass-bird	Megalurus gramineus
Superb Blue-wren	Malurus cyaneus
Silvereye	Zosterops lateralis
Raven	Corvus coronoides

PORT FAIRY WEEK-END CAMP (Cont'd.)

White-backed Magpie	Gymnorhina hypoleuca
Goldfinch	Carduelis carduelis
House Sparrow	Passer domesticus
Starling	Sturnus vulgaris

Personnel who attended the Port Fairy Camp-out:

Mr. Owen Andrews,
Miss Mary Arthur,
Miss Mary Brownhill,
Mr. Phillip Campbell,
Mr. Arthur Cahpman,
Mr. Harry Dunne,
Jeffrey Dunne,
Mr. Bob Fisher
Mr. Geoff Gayner,
Mr. & Mrs. F. Grueber,
Miss Helen Grueber,
Miss Rosemary Grueber,
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Mr. Geoff Mathison,
Mr. Trevor Pescott,
Miss Elsie Poole,
Miss Florrie Poole,
Miss Frances Poole,
Mrs. Betty Quirk,
Miss Leila Ramsay,
Mrs. Lesley Rowe & Julia (emu),
Mrs. C. Thewlis,
Mr & Mrs. L. Vincent,
Don Vincent,
Ken Vincent,
Mr. & Mrs. J. Wheeler,
Mrs. Ron Wood,
Mr. Ian Woodland
Mrs. Edna Yeoman.

Acknowledgement:
Our thanks to Miss Gracie Bowker for banding instruction and assistance. Our thanks also to Fisheries and Wildlife Officer, Mr. Gavin Cerini for guiding us at Tower Hill State Game Reserve.

* * * * *

Subscriptions are now due and payable to -

Hon. Treasurer,
Mr. E.G. Errey,
3 Leonard Street,
Belmont, 3216.

* * * * *

AT RANDOM

NANKEEN NIGHT HERON ROOKERY ENLARGING - by Jack Wheeler.

It was in February of 1963 that confirmation of Nankeen Night-herons nesting at Queens Park (Geelong) was established. On examination of three groups of Mediterranean Stone Pines (Pinus pinea) situated within the Queens Park golf course towards the western section of the Park, four nests in occupation were examined. Their contents were as follows:
"A" nest - 3 young, one of which was a weakling and survival doubtful. One was banded 110-33107.
"B" nest - 2 young one of which was dead. Surviving young of approx. 3 weeks was banded 110-33108.
"C" nest - One young - dead.
"D" nest - 3 well feathered young beside but not occupying nest.

At least fifteen adult birds circled the nest trees during visit. Other trees contained both well feathered young in immature plumage and adults in breeding plumage with distinctive plumes. Strength of rookery was estimated at about forty birds.

Each year since 1963, breeding has taken place but it was not until two years ago that an extension of the rookery was noticed, firstly to four groups of pines, and last season, 1969/70, an extension was made to six groups of pines. Only the one species of pine tree mentioned has so far been used, but the supply, in that region, of Mediterranean Pines has run out and it will be watched with interest to see if breeding will eventually spread to other pine species in the immediate locality

This last season has to date been their best effort when 21 nests were in occupation and mortality was not as high as other seasons. Fish submitted for identification, as being fed to chicks has been identified as elvers and carp. At stages when the young were large and demanding more regular feeding, parent birds changed their tactics to day feeding as was evident by the numbers frequenting the swamp at contraversial Hargreaves Paddock at Newtown. There was frequent movement of these birds between Hargreaves Paddock and Queens Park,another important reason why this swamp must be preserved.

ANNOUNCEMENT OF TWO IMPORTANT DISTRICT RESERVATIONS - by J.Wheeler

The recent announcement by the Minister of Forests, the Hon. E.R. Meagher, of two new Nature Reserves within the Geelong region is indeed a most welcome one.

The first one, to be known as Angahook Forest Park near Aireys Inlet is of 7,000 acres and will give permanent preservation to some of our best wildflower, orchid and bird habitat in the eastern Otways and could be the follow-up of more reservations within that most important area. The ideal would have been 14,000 acres but with permanent forest land bordering to the west, the Authorities may at some later date grant increased areas. To the east there are two areas of Crown Lands which could be ideally added to Angahook, and this Club is very interested in submitting a case for same. The Forests Commission has invited this Club to carry out a survey of fauna and flora within Angahook and this we are very happy to do.

The second reservation is that of 550 acres to be known as the Bannockburn Fauna and Flora Reserve, situated west of Bannockburn on the Shelford Road. The Geelong S.G.A.P. made application for this reservation and was strongly supported by this Club.

MT. MACEDON FOREST PARK:

Members who have visited Mt. Macedon with this Club's weekend excursions in 1968 and 1969, will be interested to learn that the whole of the Reserved Forest of Mt. Macedon range is to be permanently preserved and covers an area of approximately 3,200 acres.

* * * * *

LET'S STOP AND LOOK

By L. Elms

Why is it that we hasten past that tree, while round its base
There's wondrous things to see if we but look.

All very well to take its photograph, and then determine its
Official Name to enter in some book.

Instead of rushing on to parts beyond, to look for nests
And trees and birds and such,
Some much rewarding time could well be spent around that tree.

The wealth of various things that Nature sent for us to see
should not be missed. There's ants and butterflies
And spiders webs, and seeds from shrubs, and gum shed from the tree.

There's grubs and beetles down there by the score, as well as
Fungus growths across the floor of mulch that feeds that tree.

That large dead branch protruding overhead has bees inside -
They can be seen in flight out to the pollen flowers,
Then back again to their strange home, to put more honey
In the honeycomb.

So much is missed because we rush to see the common things
Far on beyond that tree.
Let's stop a while to study now and then the smaller details
Which are to be found if we but take the time to search around.

* * * * *

JUNIOR PAGES

In "Geelong Naturalist" for February 1970, there were three photographs shown on the last page, each one representing some stage in the development of a mistletoe plant.

First there was the flower, with long petals joined for most of their length to form a tube; this shape is typical of mistletoe flowers, although most of the mistletoes we see in the Geelong district have flowers which hang down rather than point up.

This is the flower of the Harlequin Mistletoe, and it is a very vivid red and green in color.

When the flowers die off, seeds develop; more correctly they should b should be called "fruit", for the seed itself is covered with a layer of sweet but sticky flesh which is in turn covered with a firm skin.

Once the fruit are ripe, they become the main food of the Mistletoebird; the second photograph shows the female bird.

The Mistletoebirds take the fruit from inside the skin by nipping off the end of the fruit with their beaks, then squeezing the seed and its surrounding flesh into their mouths - much as you do when you cut the end off an orange and squeeze the juice into your mouth.

When the bird has digested the flesh, the seed is passed out with the droppings, and usually falls onto a branch below.

Here the seed takes root - and this is what is happening in the third photograph.

Since Mistletoes grow on the branch of another tree and not in the ground, their roots have to burrow into the branch instead of the ground.

The two seeds in the photograph have just sent the root with a

JUNIOR PAGES (Cont'd.)

large suction-type cap on the end curving over the branch; here it attaches itself firmly, and begins to grow as a parasite.

A parasite is something which takes its food from another creature - and mistletoe takes its sap from the branch of another tree.

This, then, is briefly the life story of a Mistletoe - the flower, the fruit that follow are eaten by the Mistletoebird, then the seeds grow on another plant to form another mistletoe clump ready to flower and repeat the cycle.

There are many parasites in nature, but mistletoes are the best known of all.

* * * * *

Do you remember Benjamin, the fox that came to several of our meetings?

"Benj" has gone to live on a large farm where she will share a large, spacious enclosure, with another fox for company.

Far better for her to live in the country, for foxes are not town dogs; at her new home, she will have plenty of space to move around, and her new guardian is well accustomed to looking after animals of all kinds.

Foxes do a great deal of harm to our native birds and animals, and on many occasions we watched Benj. as she eyed the sparrows or even magpies in our garden.

No doubt she was wishing she could have a try to catch these tasty-looking birds.

Even in her new enclosure, she gazed whistfully at a pet Galah in the next cage; and no doubt she would soon notice the fowls and ducks nearby.

We are looking forward to hearing more about her in her new home.

* * * * *

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Visitors Welcome

All papers submitted for publication in this journal should be sent to the Hon. Editor

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Journal of the Geelong Field Naturalists Club

NATIONAL MUSEUM
26 OCT 1970
OF VICTORIA

HONEY POT HEATH

Hon. Editor: Trevor Pescott

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The Statements and the opinions contained in the papers published in this Journal are the responsibility of the respective authors.

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COVER PHOTOGRAPH:

Honey-pot Heath

By Trevor Pescott.

GEELONG NATURALIST

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EDITORIAL

The problems associated with the successful and economic operation of a Club such as our own are only as large as the members within the Club allow; the key word is undoubtedly "co-operation", for the work of any executive member of Committee is proportional to the co-operation he receives from the members.

Recently, a check was made on the financial status of Club members, and the result was quite a shock; a large proportion of the members have failed to pay their dues even though a quarter of our Club year has already passed.

One fault undoubtedly lies right at the feet of the Committee - although each member is, or should be, well aware that our new Club year begins in each April, no reminder of this is sent to members at the end of the year.

To overcome this, a form for renewal of membership is now to be included in the first and second issue of each Volume of "Geelong Naturalist"; the object is to remove the sheet, and remit it with your subscription to the Honorary Treasurer.

Also shown on this renewal sheet is a new membership application which can be given to any prospective member.

Remember, co-operation is our key word!

Material for publication in "Geelong Naturalist" is also continually needed so that it is possible to maintain a high standard of publication embracing a variety of topics and styles.

Photographs too, are always needed, and these should be clear black and white prints of good contrast and printed on glossy paper.

To assist the Editor, articles should be type-written if possible, or at least written clearly so that there can be no possibility of mistaking words; place names and names of species should be printed.

TREVOR PESCOTT, Hon. Editor.

A SEABIRD'S STRANGE CARGO

By Pamela Knight, Terang.

As I sit in my oil-heated study corner looking out at the silvereyes and honeyeaters competing for sips at the honey-syrup feeders in the wintry garden - my mind wanders to the warmth of Point Lonsdale summer holidays . . . . . and from that source there is a tale to tell.

On the evening of January 21st, 1970, a holiday maker approached a flock of seagulls standing at the water's edge on the Bay beach in the Golightly Park area. His attention was immediately taken by the lone, larger very beautiful bird squatting with them on the wet sand. As the seagulls glided away, the solitary bird remained quite approachable and amenable to handling. Although to the finder the bird appeared bright of eye and plumage, alert (preening and squaking) and able to spread its wings and glide some distance out onto the water when released from his hands held high - the bird was doubtless already failing and was repeatedly washed back to the shore.

The finder then attempted to feed and care for the bird until its inevitable death on the following evening.

At this point the bird came into my possession along with a very interesting bonus in the form of a fully engorged tick which fell from its forehead.

The bird of dazzling white underbody, neck, forehead and tail had wings of deepest seal-brown and from the white forehead the head became streaky with grey-brown which deepened down the back. The sturdy bill was black and intense black continued from the bill about the eye. The legs and feet were flesh-coloured. The bird measured 16 inches in length. Its bill proclaimed "Petrel" but I was not confident of species identification with only "Cayley" on hand. So the bird was frozen and Mr. Pescott consulted. Mr. Pescott, too cautious to be definitive, so our petrel was forwarded to Mr. McEvey of the Melbourne Museum, who pronounced Pterodroma lessonii, the White-headed Petrel.

This species is described as a bird of the Southern oceans and a rare visitor to the seas of south-western, southern and south-eastern Australian mainland and Tasmania. Like other

A SEABIRD'S STRANGE CARGO (Cont'd.)

petrel species its food consists largely of fish and other marine life procured from the surface of the water. It breeds in colonies on Kerguelan, Bounty, Aukland and the Antipodes Islands. It lays a single white egg between December and January in a large-chambered burrow.

Now what of Pterodroma lessonii's parasitic cargo which had been preserved in glycerine and forwarded to Dr. J.H. Arundel of the Veterinary Clinical Centre, Werribee?

Dr. Arundel is studying tick distribution in Victoria and is not only pleased to receive specimens, but is most helpful and tireless in pursuing and supplying information as this tale will unfold.

In the case of our "Petrel tick" Dr. Arundel provisionally identified it as Izodes pterodromae, a species previously recorded only twice in Australia, once from the Wandering albatross (Diomedea exulans) on De Witt Island, Tasmania and once from a "penguin", Macquarie Island.

The species has also been described by Arthur, and English authority, from the Kerguelen petrel (Pterodroma brevirostis) and the Soft plumaged petrel (Pterdroma mollis) from Marion Island, Indian Ocean.

Exhibiting true scientific caution, Dr. Arundel then forwarded the tick to Dr. Roberts in Queensland for his confirmation, as there are three other very similar species not yet recorded in Australia, with which Ixodes pterodromae could be confused. Dr. Roberts agreed with the identification of I. pterodromae, but wrote to Professor Nixon of Hawaii for confirmation as Queensland does not have specimens of I. percavatus and I. zumpti - two of the very similar species. We await details from Professor Nixon who has replied that he has recently written a paper detailing our required information, which he expects to be published within three months!

In the meanwhile, it seems most likely that Ixodes pterodromae it is!

I asked Dr. Arundel could he advise the time taken for complete engorgement of the tick, as this might suggest how long the

A SEABIRD'S STRANGE CARGO (Cont'd.)

bird had been at sea, to which he made the following reply;

"The length of time taken to complete engorgement can vary considerably from tick to tick and even within one species. I have no knowledge of this species and I doubt that anyone does. Only the female and nymph have been described and the male and larvae are unknown".

What an involved and difficult subject for study the Ixodes fraternity appears to be. One wonders how many more Point Lonsdale summers, how many more windswept Terang winters, indeed how many centuries before the strange life cycles of such strange small creatures will be fully understood by any of us.

* * * * *

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THE PERPETUAL FORCES OF NATURE

By L. Elms

Ever since the time of the Creation of our World and the Universe, estimated by scientists as being some billions of years ago, we have been surrounded by many important forces in the Realm of NATURE, most of which are invisible.

Unquestionably the most important is the FORCE OF GRAVITY, without which we could not exist, as walking, sitting, preparing meals, water supplies, sporting activities etc. would be impossible if this essential Force suddenly ceased. This essential force is quite invisible, but has recently been the subject of close study by the Astronaughts, who have compared it with the Force of Gravity on the Moon.

Another invisible but perpetual force is the magnetic field which encompasses the Globe from the North magnetic Pole to the South magnetic Pole. Without this force, navigation of planes and ships as well as normal survey work by the use of the compass, would be quite impossible. Bees, ants, and migratory birds may make use of this Magnetic Force.

The daily turning of the earth on its axis is yet another perpetual force which gives us our warm sunny days, and the cooler hours of darkness during the night, which are so essential to all forms of life - both human beings and all forms of Natural History.

This rotation of the earth results also in the apparent rising and transit of the moon across the sky, without which we would have no tides in the oceans, and all the marine life along our shorelines might cease to exist if the tides ceased to rise and fall each day.

The Seasons of the Year, ranging from fertile Springtime to chilly Winter, result from the continual movement of the Earth in an elliptical orbit around the Sun, and without these Seasons to stimulate reproduction in the vegetable and animal kingdoms, our continued existence would be doomed. Associated with these Seasonal Changes are the changes in our climatic conditions, giving us - as a general rule - soaking rains in the Winter, and a warmth in the Summer to stimulate all growth on the face of the earth.

THE PERPETUAL FORCES OF NATURE (Cont'd.)

It can thus be seen that we have been wonderfully and perpetually endowed with many PERPETUAL FORCES of NATURE, which - unfortunately - we are prone to take for granted, without studying the tremendous significance they have in enabling life to continue in the Animal, Plant, and Bird Kingdoms, as well as continuing our own human existence.

* * * * *

THE BARN OWL CAME INDOORS

By Trevor Pescott

The winter of 1970 has brought to the Geelong district an enormous influx of Barn Owls (Tyto alba); many of the birds are very thin, obviously suffering from malnutrition, and the cold weather has killed a large number of the birds.

Owls have been recorded in some odd places and under strange circumstances, but perhaps the most unusual on record is one which occurred in a house in Churchill Avenue, West Geelong.

It is a double-storey house, and the owner was asleep in the upstairs bedroom one mid-winter night; she had left the top window partly open, and during the early hours of the morning was wakened by the fluttering of a bird.

When she investigated, she found a Barn Owl perched on the dressing table!

Since it was early morning, she went back to sleep, and when she awakened again about 7.00a.m., she found the Owl perched on top of the wardrobe, settling down to a cosy day's sleep.

How the Owl found the open window is hard to understand, and even more strange was the willingness of the bird to come inside the house.

Several years ago, a pair of Barn Owls nested in the screen at the Moolap drive-in theatre; one of the owlets banded there was later recovered in South Australia, indicating the manner in which these birds will travel long distances in nomadic wanderings.

WILDFLOWER STUDY TOUR TO GERALDTON

By P.L. Fry

During an enjoyable month's long service leave last September in Western Australia, it was a pleasure to embark on a Parlor coach Wildflower Study Tour to Geraldton. Led by a botanist from King's Park, we were continually advised of the passing countryside and points of interest all the way.

Travelling Red Hill Road towards Toodyay, climbing the Darling Range, we passed many lovely picnic spots, and many varieties of Eucalypts (Manna, Wandoo, Red gum and some Jarrah) with lesser shrubs were noted.

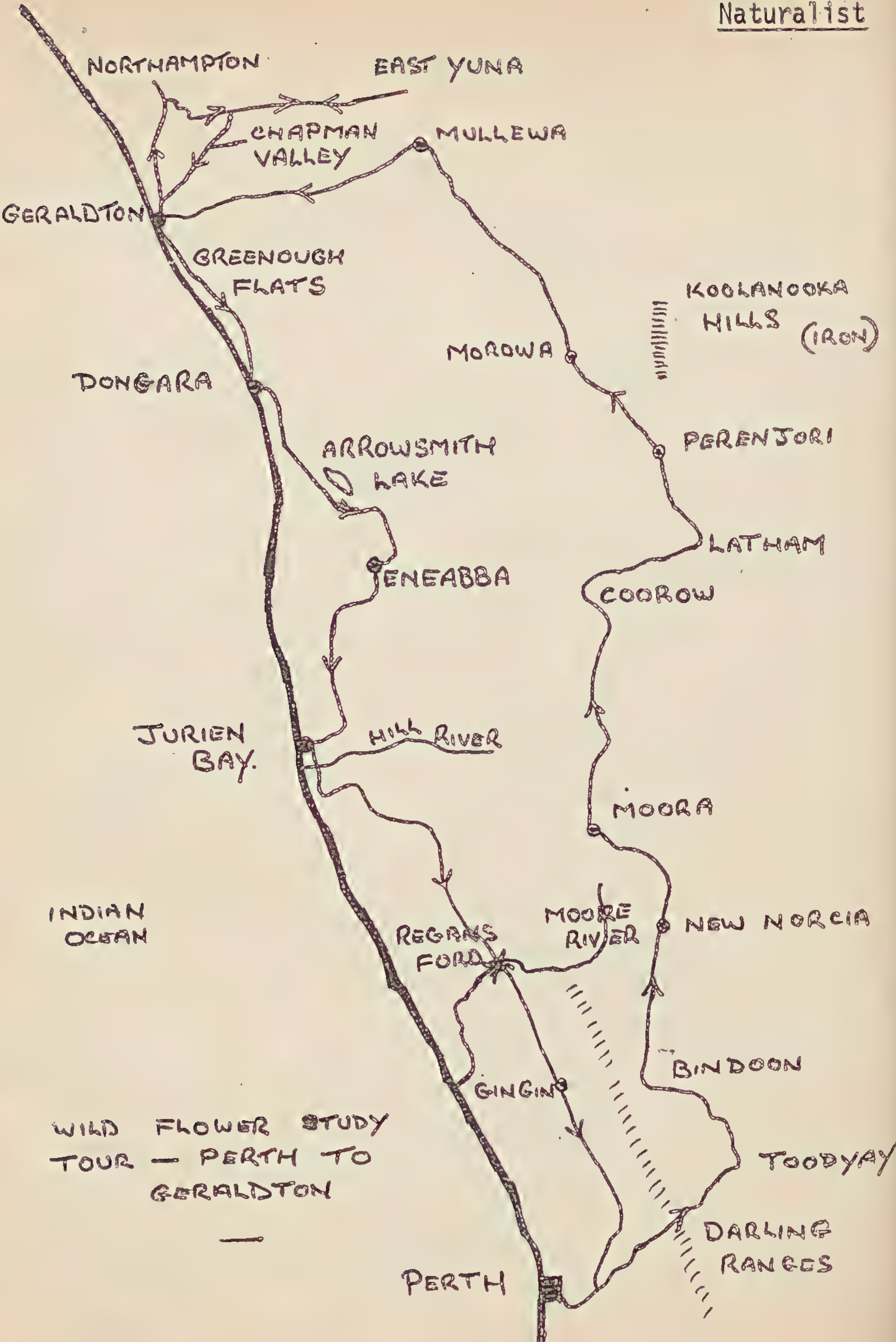
Wandoo bark was used in early days as a tanning bark; Wandoo country, due to a poisonous pea plant, was previously left uncleared because of danger to stock, but with improved clearing methods this has now been largely overcome. Nearly 1 million acres per year is now cleared, and being sandstone and granite country it is much in demand for farmlands. Noted here was a member of the fern family the macrazamia palm; later we found many old plants, further North, with as many as a dozen large "pineapples".

After a short stop at Toodyay we crossed the Avon River, which lower down becomes the Swan, and passed the early Drummond Home; in the early days of Western Australia, John Drummond, on arrival was appointed Government Botanist, but being badly treated, selected land round Toodyay. On his excursions he collected many specimens which were sent to England for further identification. He, or his descendants, later selected other farmlands northwards to beyond Geraldton, one son eventually being speared by the natives near Northampton.

On the tour nearly all lunches were taken picnic-style beside the road; this was greatly enjoyed as it allowed us to botanise without loss of time.

Near Bindoon, Keaney College, a large Catholic College was inspected; built largely of local stone it blends in well with the countryside.

All along the way, although the countryside has been cleared, the roadsides carry a fairly good wildflower cover; although in



WILD FLOWER STUDY TOUR — PERTH TO GERALDTON

WILDFLOWER STUDY TOUR TO GERALDTON (Cont'd.)

some places this has been cleared away also.

After the first night at Moora, we soon found ourselves in savannah country where casuarinas and acacias took over from the larger trees. A large native Hybiscus in flower right alongside the roadway was much admired. We saw more further north although the plants were not as large as these.

Leaving the Highway at Latham the road to Coorow was across red sandy loam with flat topped laterite hills and a lot of salt pans. Devoted mainly to wheat and sheep farming, the salt pans have a self-sealing surface to conserve moisture in dry seasons.

Nearing Morowa, in the distance to the right could be seen the iron mine in Koolanooka Hills, the whole hill being cut away is a great scar on the landscape. This iron is railed in 2000 ton train loads 140 miles to Geraldton for shipping to Japan and elsewhere.

Sturt Desert pea is being cultivated in a small plot in the main street of Morowa.

Due to the dry season, although prolific, the everlasting flowers were nowhere near as large and colourful as in previous years.

Finally after searching many miles of roadside beyond Morowa Wreath Leschenaultea was found flowering on the laterite roadside. This leschenaultea grows like a tussock of grass and flowers round the outside like a wreath, hence its name.

Time was running out so we hurried along for Geraldton, arriving about 7.00p.m. instead of 5.30p.m.

Roaming round Geraldton we saw many old and new buildings. At the new Civic Centre are housed several trophies of the "Batavia" wrecked 300 years ago on the Abrolhos Islands about 40 miles off shore Due to the pleasant climate and magnificent beaches, Geraldton is a very popular holiday town. A million tons of iron ore, 1/3 of the state's wheat, and huge quantities of crayfish are shipped away each year.

From Geraldton north to Northampton through undulating country then eastward to East Yuna Reserve where we met Mr. & Miss McGauran who, in the time available showed us many of the 350

WILDFLOWER STUDY TOUR TO GERALDTON (Cont'd.)

varieties of plants and some of the 140 birds found in the reserve. Then back to Geraldton via Chapman Valley and on again next day south across the Greenough Flats where we saw many of the Greenough Gums, through Dongara, across many miles of heathland to a delightful lunch at Eneabba,prepared by a devoted band of ladies who travel up to 40 miles every third day to serve lunch. Near Eneabba we passed a great forest of Banksia grandis where the flowers were like Chinese lanterns for as far as one could see, also a small thicket of a rarer Banksia elegans. The heathlands round here and on to Jurien Bay contained many verticordia or feather-flower. Black Kangaroopaw, lots of Catspaw, and Red and Green Kangaroopaw Synaphens, Hibbertras, Dryandras etc. From Eneabba to Jurien Bay the vegetation was much the same but we were greatly impressed by the huge areas of smokebush.

From Jurien Bay, next day south along the coast to near Cervantes, huge drifting sand dunes then inland and south to Regan's Ford was much the same country although round Regan's Ford we again entered York gum and other tree forests. Particularly noticeable were several Eucalyptus Macro carpus or "Rose of the West" in bloom. At Gin Gin we found Green Kangaroopaw, and in the cemetery Catspaw and Red and Green Kangaroopaw have cross-pollinated each other producing many wonderful colors.

And so back to Perth after a truly delightful and very interesting tour of some 800 miles.

Some Botanical Notes for the Tour:

To Moora -

Grevillea synapheae
Daviesia dielsii
Dampiera linearis
Hibbertia mineata
Boronia ovata
Hypocalymma augustifolia
(Swan River Myrtle)
Synaphea farosa

Grevillea pilulifera
Daviesia pectinata (Staghorn bush)
Dampiera pectinata
Hibbertia lasiopus
Leschenaultia blue and yellow
Vertuordia picta (Feather flower)
Dryandra polyaphala (Parrot bush)

To Geraldton -

Hibiscus hueglii (native hibiscus)
Kerandrenia integrifolia
Melaleuca uncinata

Leschenaultia macrantha (Wreath)
Petrophila macrostigia
Melaleuca namatophylla
(Paperbarks)

WILDFLOWER STUDY TOUR TO GERALDTON (Cont'd.)

East Yuna Reserve and Northampton -

Balaustion microphyllum
(native pomegranite)
Threlkeldia
Verticordia monodilpha
(feather flower)
Eumophila clarkei (Poverty bush)
Grevillea diebiana
Keraudrenia hermaniafolia
(fire bush)
Verticordia chrysantha
(feather flower)
Diplotaena grandiflora
(Native rose)

Dongara and Jurien Bay -

Dryandra fulcata (Parrot bush)
Banksia elegans
Contspermum recurvum (Smoke bush)
Lambertia inermis
Numerous Acacia, Eucalypt, Casuarina
Pityrodia axillaris (native foxglove)
Lachnostachys brevispicata
(Lamb's tails)
Lasiopetallum
Burtonin scabra
Anigosanthos manglesii / humulis/ viridis (Kangaroo & Cats paw)
Macropidia fuliginosa Black Kangaroopaw

* * * * *

NATIONAL PARKS ASSOCIATION EXCURSION

The V.N.P.A. is holding an excursion to the Brisbane Ranges on Sunday, October 4th; travelling by Vintage train, and stopping at Moorabool railway station, then to Lethbridge for lunch; moving on to Meredith the group will board buses, then to the Steiglitz bush for a bush walk, before re-boarding the buses and back to the train.

For further details, contact Mr. J. Hunt (telephone 66.1281) or Mr. T. Pescott (telephone 43.4368); it should be a most enjoyable day.

* * * * *

BEACH-WASHED!

By Ian Woodland

On December 24th 1969, I was driving along the Torquay Bream Creek Road and noticed an adult Wedge-tailed eagle standing among the tussocks. I stopped the car but the bird did not fly away. Within a few seconds the movie camera was whirring and still the eagle remained motionless. Quietly I managed to get the tripod out of the boot and move in closer for a few close-up shots. The bird flew over the cliff edge and I filmed it again. It then rose into the air and flew out to sea.

After circling several times it plummeted into the water, much to my astonishment. It was too far out to rescue, so a dejected field naturalist walked back towards the car. I noticed several dead rabbits near the area where the eagle was first seen. Could it have been 1080 poisoning?

Later I reported the incident to Mr. Wheeler, President of the Geelong Field Naturalists Club.

On January 2nd 1970, a water logged Wedge-tailed eagle was found in the sand dunes, 1 mile west of Point Lonsdale light-house in Buckley Park, by Mrs. Heinz and Mrs. Johnston. The bird had been dragged from the water by a fox or a human.

Mr. Wheeler was notified, and on January 13th 1970, he inspected the remains. It was estimated that the bird had been dead for approximately three weeks. Both talons had been cut off.

What caused the untimely death of this noble bird; natural causes or poisoning? Perhaps some readers may have suggestions. Mr. Wheeler said that it was the first time that he had had a Wedge-tailed eagle on his list of beach-washed birds.

* * * * *

WEDGE-TAILED EAGLE

Photos by Ken Stepnell.

IS THAT A BOTTLEBRUSH OR A TEA-TREE?

By Peter Fagg

Many species of the genera Leptospermum, Baeckea, Melaleuca, Kunzea, and Callistemon, are somewhat alike in appearance, and thus are often confused in people's minds. Accordingly, it is wise to talk in scientific names i.e. botanical "genus" and "species", when referring to members of this group, as common names applied to them are many and varied. (The better common names for the genera are listed below.)

Baeckea and Kunzea will be generally less well-known, but these and the other three genera are botanically closely related, so the following descriptions will cover all five.

The species of the five genera are all evergreen shrubs or small trees, with small simple, and often aromatic leaves; they belong (as does Eucalyptus) to the botanical family MYRTACEAE. Together, they comprise a large and widespread group of plants in our Australian flora.

Within Australia, there are approximately
40 species of Leptospermum
70 " " Baeckea
150 " " Melaleuca
20 " " Kunzea
20 " " Callistemon.

Within Victoria, there are approximately 60 species of these five genera.

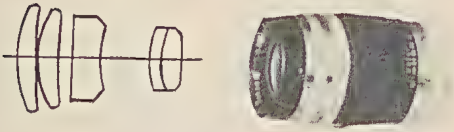
The following table of descriptions was prepared with reference to only the more common Victorian members of the genera.

Most species of this group can be referred to their correct genus without the use of flower characteristics, but the use of flowers will make identification more precise. Excellent color photographs of 16 different species of these genera can be found in "Flowers and Plants of Victoria".

REFERENCES:

"Wildflowers of Victoria" (1967) - Galbraith.
"The Families and Genera of Victorian Plants" (1967) - Dept. of Botany, Melbourne University.
"Flowers and Plants of Victoria" (1968) - Cochrane, Fuhrer, Rotheram, Willis.
"Trees of Victoria" (1968) - Costermans
"Flora of Victoria" (1931) - Ewart.

PHOTOGRAPHERS!



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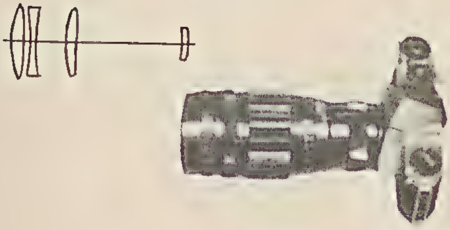

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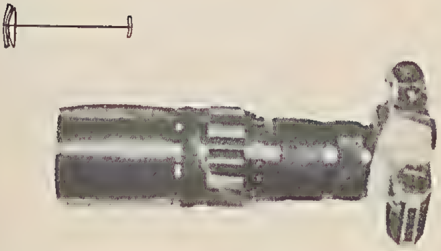

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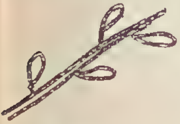
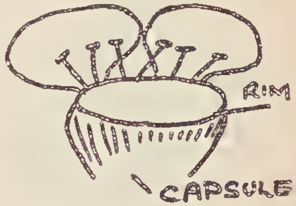
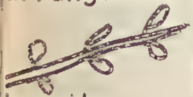
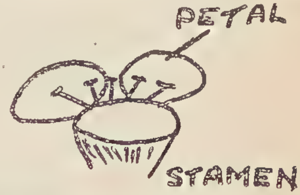
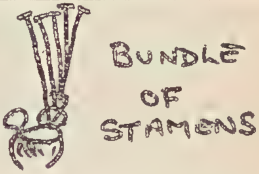
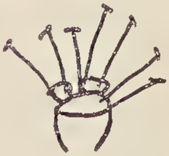
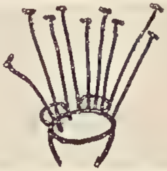
IS THAT A BOTTLE

FEATURES. GENUS	FORM	TIME OF FLOWERING	FLOWER COLOUR	FLOWER ARRANGEMENT
LEPTOSPERMUM Tea-tree	Shrub/small tree	Spring Summer	White Pale pink	Mainly in leaf axils. Not in compact spikes.
BAECKEA Heath-myrtle	Low shrub/ shrub	Winter Spring Summer	White Pink Mauve	" "
MELALEUCA Paperbark and Honey-myrtle	Shrub/small tree	Spring Summer	White Cream Pink Mauve	In compact spik -"bottlebrushes in which leaves are not obvious
KUNZEA Kunzea	Shrub/tall shrub	Spring Summer	White Cream Magenta	In leafy spikes or compact head
CALLISTEMON Bottlebrush	Tall shrub	Autumn Winter Spring Summer	White Yellow Red	In compact spik -"bottlebrushes in which leaves are not obvious

H OR A TEA TREE? (Cont'd.)

LEAVES	FRUIT (bowl-shaped capsules)	PETALS (always 4-5 in number)	STAMENS	DIAGRAM OF FLOWER (sizes approx. relative)
Alternate arrangement.  Length: 1-2 cm.	Woody. Opens by radiating slits on the top. May persist for more than 1 year	Conspicuous Longer than the stamens.	Shorter than the petals Not in bundles.	
Opposite arrangement  Length: 0.2-1 cm.	"	"	" Usually 10 in number.	
Alternate & opposite arrangement. Length: 1-2.5 c.m.	Woody. Persists on branchlet for more than 1 year.	Not conspicuous. Much shorter than the stamens.	Conspicuous. Much longer than the petals. In bundles.	
Alternate arrangement (approx.) Length: 0.5-1.5 cm.	Non-woody. Does not persist for more than 1 year.	"	Conspicuous. Much longer than the petals. Free (not in bundles)	
Alternate arrangement (approx.) Length: 2.5-8 cm.	Woody. Persists for several years.	"	"	

COLLECTING MUTTON BIRD EGGS - PHILLIP ISLAND

By Oonah McHaffie

The particular excursion of 1905, at which this photograph was taken, is not listed in "The Victorian Naturalist" but, judging by some of the participants, it was an "unofficial" group of Field Naturalists and friends.

Many excursions by "egging" parties took place before 1907 when the wildlife on Phillip Island was protected.

An article by A.J. Campbell (who appears in the photograph), entitled "At Phillip Island, Western Port", was published in "The Victorian Naturalist" of 7th April, 1904. It had previously been read, illustrated with lantern slides, before the Club on 16th November, 1903.

Frequent trips were taken to the Island to see the mutton birds and collect their eggs and the author deals with three of the camp sites near the rookeries.

1. The neighbourhood of Cape Woolamai, at the eastern end.
2. The site of the 1902 Ornithologists' Camp on the Back Beach at The Narrows.
   (This must be the same site as that shown in the photograph of 1905).
3. The neighbourhood of the Nobbies at the Western extremity of the Island.

According to Mr. Campbell, at that time Woolamai was reached by taking a sailing boat from either Hastings or Stony Point. The party was landed at a sandy bight under Red Point, and this is where the party made camp. An alternate route was by the regular steamer, the party being landed at Newhaven and its way made overland to the Cape. During this stay the author reports that other camps were near. Thirteen boats arrived with "egging" parties from different parts of Western Port, the largest numbering eleven. Four-horse conveyances came from Newhaven, and several visitors, including ladies, came on horseback.

Mr. Campbell commented that the burrows, like rabbit warrens, extended over many acres of the Cape plateau, under a covering of hore-hound (an introduced plant), pig-face weed

COLLECTING MUTTON BIRD EGGS (Cont'd.)

(Mesembryanthemum) adorned with small pink flowers, sword and tussock grass, etc. The chief rookeries were near the sea. A good rookery could be identified by the odour of the guano, and the more pungent the musty smell of the sea-birds themselves, the better the rookery, because the eggs were more plentiful. The party worked the rookeries morning and evening and rested in camp at mid-day.

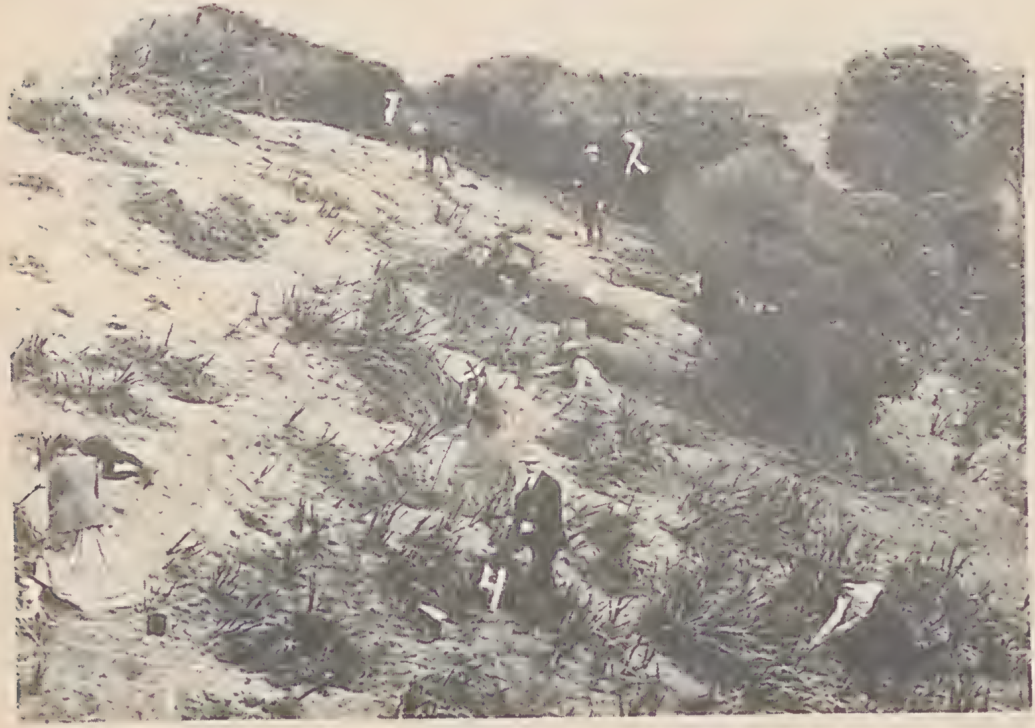
To collect the eggs a crook was used. This was made from a staff of thin swamp tea-tree about five feet long, with a crook made of fencing wire at the end. This crook was inserted into a burrow, which extended from two feet to six feet, usually in a diagonal direction, in the sandy soil. If a bird was there it rapped sharply at the end of the crook with its bill. Then the "egger" fenced with the hidden bird till he felt the egg and could hook the egg and draw it to the surface.

It is amusing to read Mr. Campbell's description of the positions used when "egging" as it explains the postures of the people in the 1905 photograph. He writes: "It is interesting watching the eggers at work. The most comfortable position is bending on one knee when plying the crook in the burrows. Others prefer laboriously bending their backs instead of their knees when raking a burrow, while some sit down in a business (or, rather, unbusiness) way at work. Occasionally you come across a small party of ladies, gloved and veiled, deftly using their egg-crooks."

For the excursion at The Narrows, the outing extended over a week and about thirty persons, including a number of ladies, were present. They travelled by train, steamer, and conveyance to the site of the camp. This camp consisted of eight tents. The author writes: "The amusement of egging was carried on during the day, chiefly to supply the larder. Mutton bird eggs fried are a great delicacy and were enjoyed by all in camp."

The third mutton bird rookery, at the Nobbies, was visited while the party was encamped at "The Narrows". The party left the camp early in the morning and, after driving along what he describes as very good roads, they reached the Nobbies and found, that, as the tide was going out, they were able to

Copied from particulars written on photo given to Historical Society by A.D. Hardy.



THE NARROWS ROOKERY - EGGING - FIELD NATURALISTS CLUB
EXCURSION TO PHILLIP ISLAND 1905.

COLLECTING MUTTON BIRD EGGS (Cont'd.)

scramble up the side of the Nobby where they found brooding mutton birds and penguins. The Little Nobby, between the Big Nobby and the mainland, was the most convenient place to see the penguins at home, sitting in shallow hollows upon a pair of eggs or dusky-coloured chicks.

After the mid-day meal, a start was made to return to camp. Some visited Flynn's rookery which was on the sand dunes between a small picturesque lagoon and the inner beach of Western Port. About half a mile further on (eastward) was McHaffie's rookery, which was similar in size and extent to Flynn's. Mr. Campbell's concluding notes refer to the rookery deriving its name from the original lessee of the Island, Mr. J.D. McHaffie, and he comments that some evidences of the old homestead were still there, notably the imported pines which looked strange towering above the native trees.

The most important point that comes to mind, when reading about these excursions, is that the Government did not make its move any too soon, to protect the wildlife on Phillip Island. As a mutton bird takes many years to mature, and thereafter lays only one egg per year, the taking of the eggs must have been working towards the extinction of the species quite as much as the killing of the birds.

* * * * *

EDITOR'S NOTE:

Muttonbird or Short-tailed Shearwater, is now totally protected legally in Victoria and of course the taking of eggs is now illegal. But in the early 1900's, egg-collection and the use of eggs for various purposes, was a common and quite legal procedure.

* * * * *

FERNS OF THE DISTRICT - PART 2

By E.G. Errey

Most ferns are happiest where both the soil and the atmosphere are permanently moist, where there is an abundance of rich humus, and where they are sheltered from wind, strong light, and extremes of temperature.

All these conditions prevail in the cool, deep gullies of the Otway Ranges, and there ferns of great variety grow in profusion.

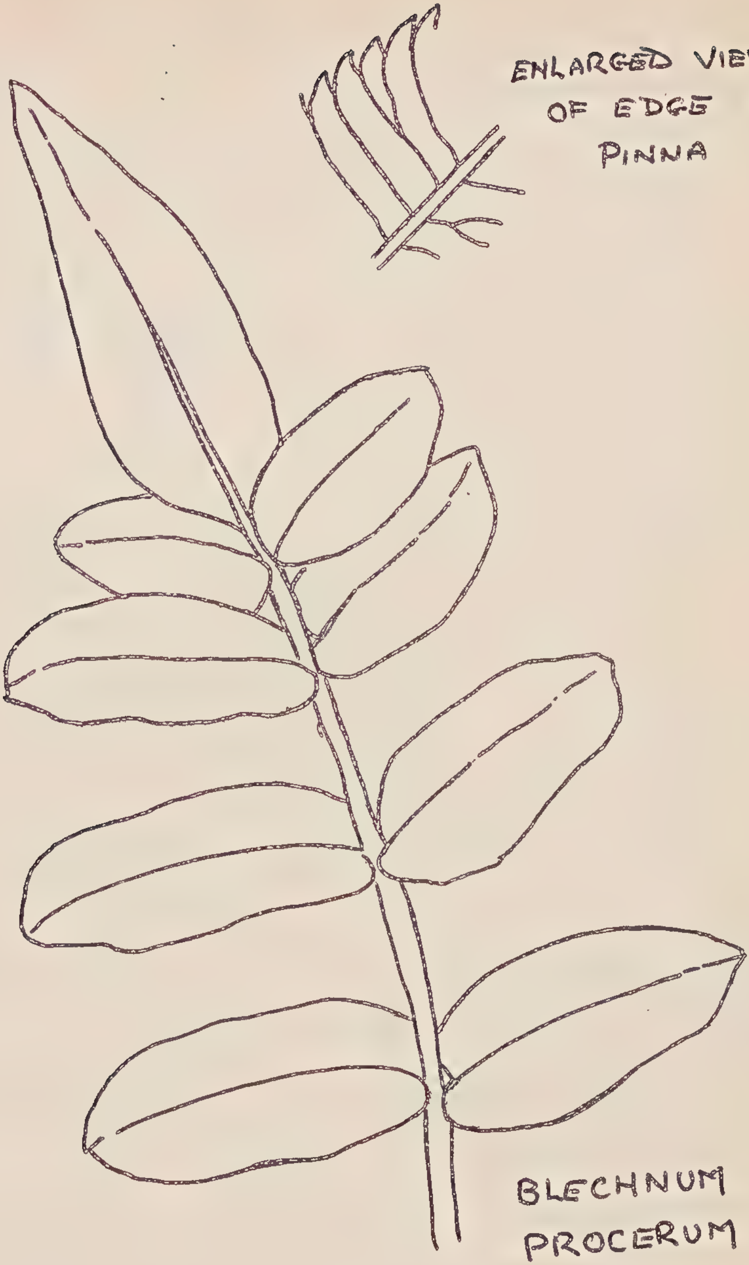
The Water Ferns comprise one group that flourishes in these ranges. As the name implies, they relish an abundance of moisture, often growing in streams, and in places forming dense thickets on boggy ground. The fronds rise from rhizomes and reach up to three feet in height. They are once divided, except in the case of Strap Water Fern, which generally has inch-wide fronds up to a foot in length.

Rhizomes of most Water Ferns are short and thick, some even forming a small butt instead of creeping along under the ground in the manner of Bracken.

The pinnae, or primary divisions of the fronds, are seldom further divided in the Water Fern group. In most cases, the pinnae in the middle of the fronds are longest, giving them the effect of tapering towards both ends. In the Hard Water Fern, however, the lowest pinnae are almost as long as the middle ones.

This species, too, has a stiffer frond than other members of the genus, hence the name. The edge of each pinna is rough to the touch. It feels somewhat like the edge of a hacksaw blade. Closer examination shows that each vein on the rather leathery surface ends between forward-pointing teeth. It looks almost as if each pinna has been formed by the fusing together of narrow pointed pinnules, the fused edges forming the veins.

Two distinct types of fronds are produced by Water Ferns. The more conspicuous foliage consists of barren fronds, while the spore cases are carried on fronds with very narrow pinnae, so narrow in fact that they look at first glance as if they



HARD WATER FERN

Sketch by E.G. Errey.

FERNS OF THE DISTRICT (Cont'd.)

have suffered insect attack, and only the midribs remain. To give an even stranger appearance, some fronds develop normal barren pinnae on one side, while the other half is fertile, consisting of narrow pinnae with spore cases.

Most species of fern have the spore cases on the underside of mature fronds, which makes them look as if they had a severe attack of the rust disease that troubles antirrhinums in the flower garden. The varied shapes and positions of the spore cases are important clues for the identification of fern species.

The spores themselves are microscopic; in fact they are single plant cells. A spore does not develop directly into a fern, but into a flat leaf-like plate of green tissue called prothallus. This has much the appearance of liverwort that often grows on top of the undisturbed soil in a flower-pot. On its undersurface the prothallus has tiny male and female reproductive organs. When mature, the male elements escape into the film of moisture beneath the prothallus, and actively swim about till they reach the flask-shaped female organs, which they enter to fertilise the egg-cells within Each fertilised egg-cell then grows into a true fern plant. This process is much closer to that of animal reproduction than any other method met with in the plant kingdom.

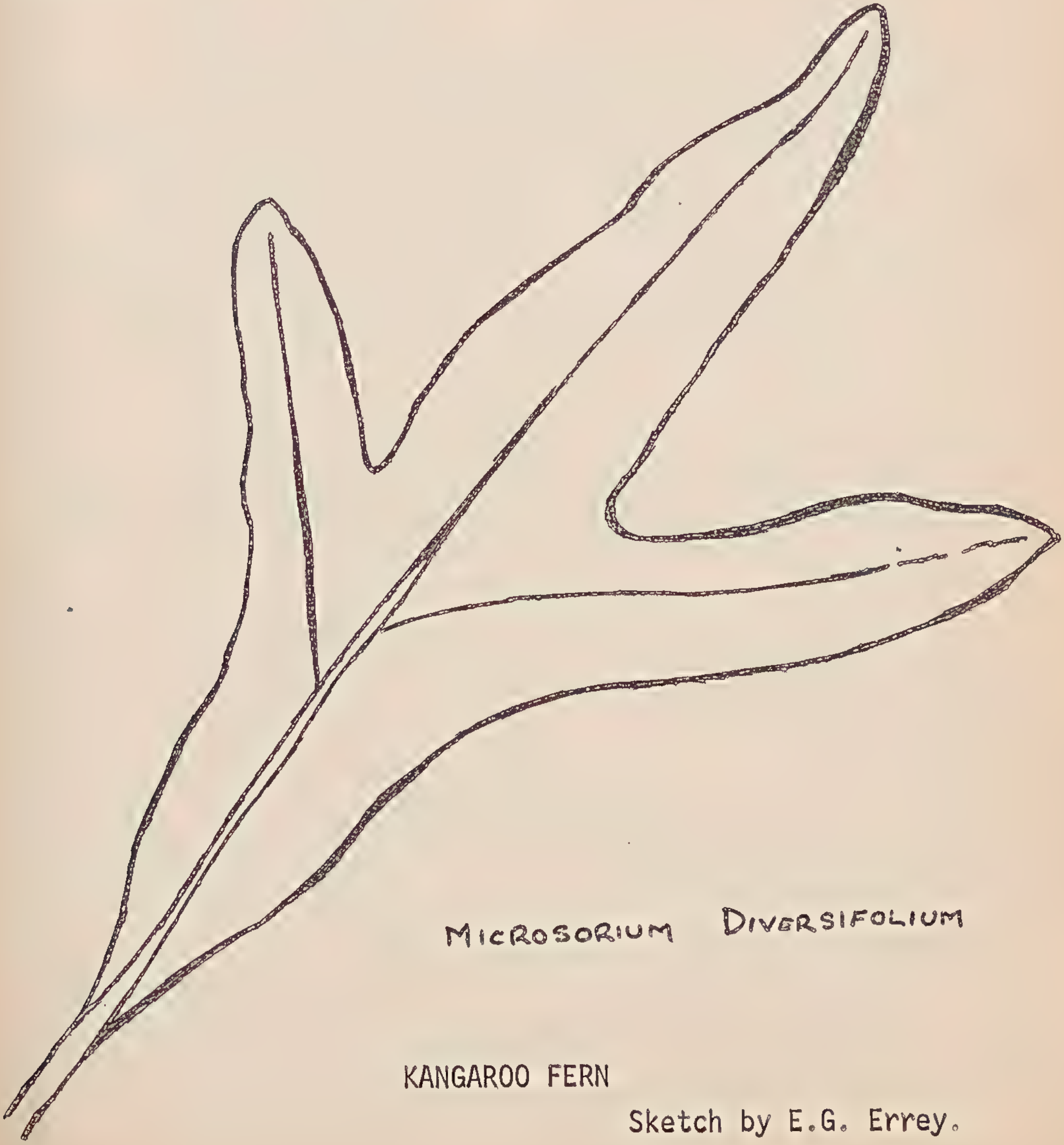
Another fern that may be confused with the Water Ferns, though it is not closely related, is the Kangaroo Fern, so called because some fronds have the three-toed appearance of a Kangaroo's foot. They are very variable, however, some being undivided, strap-like and an inch or more wide, while others have a number of well spaced lobes, shortening towards the end of the frond. The fronds are smooth to the touch, and have distinctly wavy edges.

The rhizome of this fern is a vigorous creeper frequently found on fallen logs or on tree-fern trunks. During our Benwerrin Camp-out in June, a healthy patch of Kangaroo Fern was found reaching about twenty feet up the dripping south side of a large cypress tree.

The high rainfall areas where ferns abound must have more and more territory set aside to be permanently reserved in its

FERNS OF THE DISTRICT (Cont'd.)

natural state. The opening up of such large tracts for dairying as was done in the Heytesbury scheme around Simpson, not only eradicated many lovely fern gullies, but must inevitably affect the climate and hence the vegetation of land further into the Otways.



MICROSORIUM DIVERSIFOLIUM

KANGAROO FERN

Sketch by E.G. Errey.

CONTRIBUTIONS FROM BALLARAT

Two members of the Ballarat Field Naturalists Club have written articles for "Geelong Naturalist".

The first, by Mrs. Strange is about . . .

MUD-EYES AND DRAGONFLIES

In the development of the dragonfly there is no stage of arrest or quiet as in many insects - no pupa between the larvae and adult stages. From the time it emerges from the egg it is active and a terror to many other denizens of the mud and ooze where it lives as a mudeye, the common name given to the nymph stage. Crawling warily along the bottom of the pool, the creature can hold its huge lower hinged lips with its sharp hooks back, so that it covers the lower part of its face like a mask, looking somewhat like a queer miniature bulldog. Then abruptly the gigantic lip is extruded, the hooked rim scoops up a beetle, is whisked back and the beetle is swallowed and the mask returns to position. With this continuous flickering movement water snails, mosquito larvae, etc. are disposed of. Eating, growing, moulting, the dragonfly nymph lives out its months of immaturity as one of the most savage carniverous creatures in the murky world of pond muck, even when possible making a meal of one of its own kind. Eventually, generally in Spring, it crawls up the stem of a waterweed for the last time, and halts a few inches above the surface of the water. The nymphal skin splits and a dragonfly emerges and dries its long gauzy beautiful veined wings and needle-like body.

As an adult it is no less hungry and catches its prey on the wing, accounting for innumerable mosquitoes and other insects. Its legs are bunched at the front of its body and are useless for walking. They act as a kind of basket into which insects are tumbled when the dragonfly is in flight and where they are held till they are stuffed into its huge jaws. It is a master of aerial acrobats, instant take-off, veering, banking, sudden halt, the lot and can outfly a swallow. Observers have noticed that a dragonfly is a creature of habit and establishes a regular route to which it adheres on its round of massacre. From this tree to that twig, to a certain stone

CONTRIBUTIONS FROM BALLARAT (Cont'd.)

then a tussock etc., then return to the starting point.

They are so voracious, that if a dragonfly's body is bent and the tail brought to the mouth, the dragonfly will being gobbling its own body and continue till it has eaten as much of itself as it can reach.

What a dragon!

The other article is by Mrs. Solomons; her subject . . .

LOWAN, THE MALLEE FOWL

Preferring dry semi-desert conditions as typified by mallee or mulga, the Lowan is the only mound builder in Victoria; a plump bird about 24" long mottled brown, grey and white plumage is easily camouflaged in the sunlight and shadows of the mallee. The nesting mound 10-12 ft. across and 30" above ground level, is a remarkable structure.

In March a pit is formed in the centre of the sandy mound about 2 feet in diameter and below ground level. Then with their feet raking backwards, the surrounding scrub is raked clear of fallen leaves twigs and bark which is scraped into the pit into a heap about 2 feet high and several feet in diameter.

After the Winter rains the surrounding rim of sand is thrown on to the wet vegetation and this generates heat. When an egg is due the sand is thrown back and some sand placed over vegetation. Eggs are laid in a rough circle and later eggs are deposited in circles at a higher level. After each egg is deposited the sand is raked over it and the nest resumes its conical shape.

The eggs are so large, about 1/10th weight of hen, whe lays about one a week. Incubation range is from 50 to 90 days and clutches of 12-30 eggs.

No matter what the surface temperature, the heat of the nest is always 94°F. and when a change of temperature demands the addition or removal of sand it is the male bird who is responsible.

The small Kiata reserve is an excellent nucleus for a larger reserve, or future generations may have to be content to see the Lowan as a museum specimen.

FOOD OF EASTERN SHRIKE-TIT - FALCUNCULUS FRONTATUS

By Ellen M. McCulloch, Mitcham

On 29 March 1970 I was watching a Shrike-tit on an ash tree next door when it stopped calling, held the mandibles open and pointing upwards at about 45° and I saw something I realized was a pellet being ejected to fall below. On rushing to the tree I saw that the pellet had fortunately fallen directly onto a stone, where it looked just like a small half-teaspoonful of used fine wet tea-leaves. There was nothing to hold it together and it would have quickly disintegrated and blown away, unlike the pellets from some species e.g. owls, which are usually held together by fur or feathers. The small remains were identified as hard fragments of beetles (Coleoptera) and earwigs (Dermoptera).

According to the "New Dictionary of Birds" 1964 Landsborough Thompson, pp. 608/9, birds from several families including Meliphagidae and Dicaeidae regurgitate (or cast) indigestible portions of food in the form of pellets. Unfortunately there is no specific reference given to satisfy one's curiosity about which honeyeater is involved: presumably the pellet would be as fragile as the one I found, so that finding one is sheer luck.

Lea & Gray 1935, Emu 35: 89 include in their detailed list of food of the Shrike-tit Homoptera, Coleoptera, Lepidoptera, weevils, millipedes, spiders, lady-bird beetles, wasps, vegetable matter, berries and almonds. Kellam, June 1962 Australian Bird Watcher 1:202, records a pair eating seeds of the Spreading Acacia, *Acacia diffusa*. Animal food seems to predominate overwhelmingly, but several people have told me that in suburban areas this species annually visits almond-trees. Detailed food records of most of our birds are inadequate, and any chance to identify and record food should not be overlooked.

I am indebted to Mr. Arthur Neboiss, Curator of Insects at the National Museum of Victoria, for identifying the insect remains.

AT RANDOM

WINGY - Best fed bird in Queenscliff:

by Jack Wheeler.

Almost twelve months ago, the plight of an injured bird, was noticed at Queenscliff, near the Fishermen's wharf, better known as 'The Creek'. This bird, later identified as a Pacific Gull of immature plumage, had a badly broken wing, so bad in fact that this bird would never fly again even though its wing was strapped up for a time by Ports and Harbour employees. Fishermen however, have adopted this bird, and now known to everybody as 'Wingy', is regularly fed as fishing boats move to and fro from The Creek; in fact Wingy has become so accustomed to this treatment that he shows distinct intelligence in recognising from a distance only those boats that bring food to him.

During this last holiday season, visitors walking along the sand spit which is Wingy's domain, immediately north of The Creek, caused Wingy to enter the water and swim away from them. This was the usual habit of a bird of the sea, but on this day there was a strong ebb tide flowing and plus a very strong northerly, and this proved too much for Wingy to overcome, and try as he did to swim back to shore, Wingy was soon swept out to sea. Fortunately for Wingy, one local fisherman, Billy Kidd noticed his plight, and manning his fishing boat, was soon on his way in a rescue bid; Wingy, still battling against impossible conditions, was eventually picked up half a mile out opposite the main tourist wharf.

Billy Kidd made sure that Wingy was returned to his domain, releasing the bird in a safe sheltered spot, and into the bargain giving a good feed of fish, as the bird was almost exhausted when finally picked up.

Whenever I visit Queenscliff, I make a point of calling at the fishermen's wharf just for the satisfaction of knowing Wingy is

AT RANDOM (Cont'd.)

in good hands, and to view his progress. Wingy is moulting now, and it will be interesting to watch him eventually change to adulthood (usually at the second or third moult) of handsome black and white plumage, and with a bright orange beak.

FINED FOR TRAPPING A PROTECTED BIRD:

On Wednesday 26th, before Mr. C.J. Thompson, S.M. at the Geelong City Court, Mr. Joe Xiberras of Braybrook was fined $30 for the trapping of a Black-shouldered Kite, a protected bird.

Mr. Jack Wheeler gave evidence, that at approx. 9.50a.m. on 31st May he received a call from one of our members at Marcus Oldham College, Highton, that two men appeared to be trapping birds with spring-loaded nets. On proceeding to Highton Mr. Wheeler kept the men's activities under observation for approx. 30 minutes during which time the nets were sprung three times, but it was only on the third occasion that a hawk came over the ridge and was attracted to where the nets were set, and as it came down to earth became trapped as the nets were spring-released. The men released the hawk and were seen to place it in a bag.

The hawk was identified as a Black-shouldered Kite, a very useful species and one that is fully protected.

The police were called to intercept the men and investigate their activites. As the police arrived, rain had set in, and the two men had packed up and were loading their gear into their car. On examination of their equipment, one bag contained nets, another several tiny cages containing goldfinches and greenfinches (used as decoys to attract hawks), whilst the third bag contained the Black-shouldered Kite, which was alive and appeared to be uninjured.

At the police station, two Fisheries and Wildlife Officers took over the details for prosecution and seized the nets and other equipment.

No action was taken with the use of goldfinches and greenfinches as they are exotics and unprotected.

The Black-shouldered Kite was released by Mr. Wheeler and appeared to be none the worse for its experience.

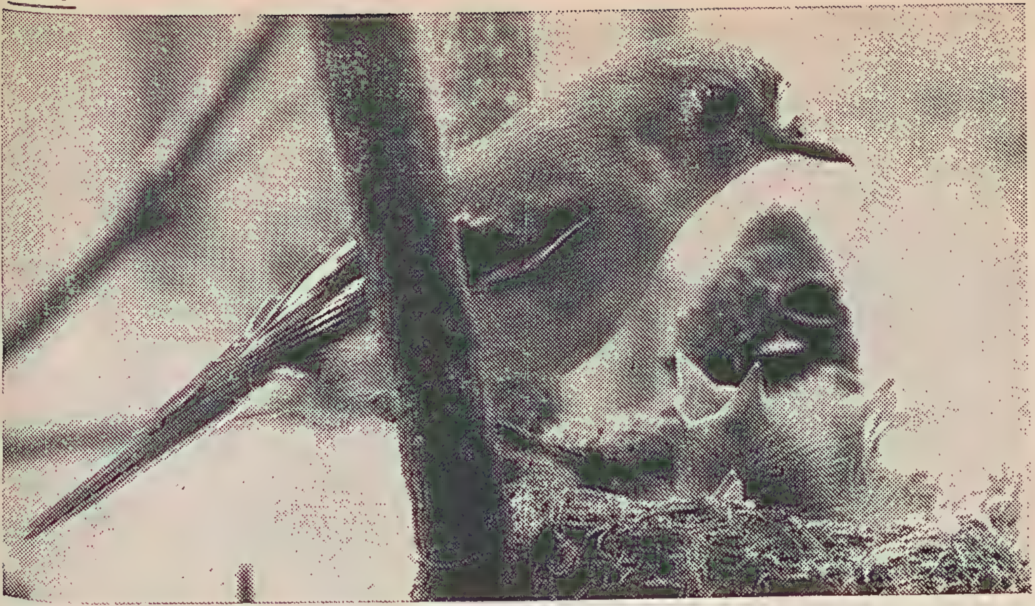


Photo by C. Tingate

SCARLET ROBIN

The Scarlet Robin is one of our most colorful birds, the male being black and white with a brilliant red chest and the female brown with a light red chest; the photograph above shows the female at her nest.

Robins feed entirely on insects, and when they have a family of two or three young ones to look after, they are very busy catching all the grubs, beetles, moths and other insects needed to feed the nestlings.

The nest is a very snug one, a little larger than a tennis ball, and made of roots, bark and other fibre, bound together with cobwebs; often the outside of the nest is made of bark off the tree in which the nest is built, so that it is better hidden and very much harder to see.

Both parents share the work of rearing the youngsters, but all nest building and most of the incubating is done by the mother; being better camouflaged, she is less likely to show hawks, ravens or other hunters where her nest is built.

Scarlet robins are found in forests and woodlands throughout south-eastern and south-western Australia.

JUNIOR PAGES (Cont'd.)

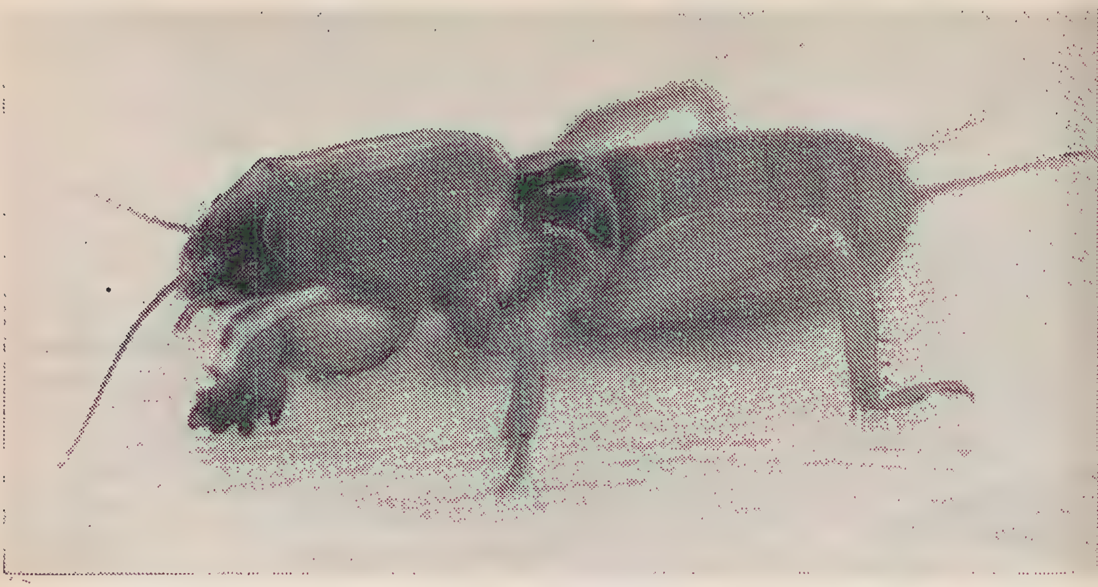


Photo by D. King.

MOLE CRICKET

During the warm summer evenings, when the garden hose has moistened the lawns and flower beds, Mole crickets can be heard singing loudly from just beneath the surface of the soil; not strictly singing, the noise is made by scraping the wing-covers together, producing a continuous rasping serenade.

Each female lays 200-300 eggs, and these remain in the end of the underground burrow with the mother until they hatch into tiny crickets rather like miniatures of the adults.

As they grow, they shed their skins several times, and each time they are bigger; the last time they moult, or change their skins, they develop wings and as adults are quite capable of flight.

The food of Mole crickets appears to be small ground-dwelling insects, and roots of plants.

The name Mole comes from the way these crickets burrow under the ground just as the animal called a Mole does.

Do not forget the JUNIOR PROJECTS this year - entries close early in November; contact the Editor for details.

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orrea backhousiana at Parker River

Hon. Editor: Trevor Pescott

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The Statements and the opinions contained in the papers published in this Journal are the responsibility of the respective authors.

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COVER PHOTOGRAPH:

Correa backhousiana at Parker River

By Trevor Pescott

GEELONG NATURALIST

Vol.7. No.3. November 1970

EDITORIAL

Perhaps each group of naturalists "adopts" as its special province an area of land which it studies and for which it attempts to obtain adequate conservation measures.

Our Geelong Club, the largest "country" Field Naturalists Club in Victoria, has become involved in field studies in the Otway Ranges, and must soon begin a campaign to receive support for an adequate conservation program.

Within the Otways are some 250,000 acres of Reserved Forest under the control of the Forests Commission of Victoria, some 100,000 acres of Crown Land, and perhaps an area equal to the sum of these in private property. Reserves in the Otways, apart from a number of small roadside and scenic reserves, and various watershed areas which are reasonably safe from exploitation, consist of a 7,200 acre Forest Park (Angahook) at Airey's Inlet.

This means that to attain even a nominal percentage of the Otways as a reserve, we need urgently a large block of land as a permanent park; by large, an area of about 30,000 acres is meant. Smaller areas must in the long term be inadequate, for these Parks are not a thing of this decade, but something able to withstand the enormous population growths envisaged within the foreseeable future.

So to give naturalists in Geelong a clear picture of the Otways, at least in rather brief cross-sectional form, and to stimulate an increase in Otways awareness, the Committee of the G.F.N.C. has agreed to devoting this issue of Geelong Naturalist to exclusively Otways material. Contrary to normal policy, perhaps, much of the material has been solicited by the Editor from very busy people. And also contrary to normal proceedings, some previously submitted material not pertaining to the Otways, has been held over until the February issue.

We hope you enjoy this, our Otways Special.

TREVOR PESCOTT, Hon. Editor.

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION

By Geoff Carr

PART I:

Local naturalists have long shown interest in the Otway Ranges, particularly the near Otways around Anglesea. The Cape Otway - Parker River area claimed attention also, but until late in 1969 no systematic work had been conducted in the area. Since December 1969 about four organised weekends have been spent here in an effort to glean some information about the natural history of the area. These field trips have been in the nature of surveys to provide checklists of the birds, mammal life and plants.

Such a short time spent in the area has made detailed examination impossible, but comprehensive pictures have been built up of the flora and fauna. Weekends have been spent at the mouth of the Parker River-Cape Otway area, several along the Parker Ridge Road-Blanket Bay area as well as at Maits Rest.

Investigating the plant life and compiling a species list involved collecting and noting in all areas visited so that a fairly comprehensive (if incomplete) list has been made. Vegetation zones or associations have also been noted and defined wherever possible.

This article will attempt to describe the main vegetation types occurring in the area, and with an accompanying list of all plants recorded, it is hoped that anyone visiting the area may be better able to understand its vegetation.

From the information recorded it is clear that the area is botanically significant, and further work in the field will magnify this. The noteable plants and communities will be discussed below, in their respective sections. Statements and opinions are based on present knowledge of the area. The only equipment used in the field was a notebook,and notes, particularly on plant distribution, are liable to be amended in the future; and as work progresses new plants will be continually added to the list.

The area encompassed by the Cape Otway to Blanket Bay coastal strip to the Ocean Road is a varied one with a number of different habitats. These are products of soil variation and rainfall.

The parent material of the greater Otways is sedimentary sandstone

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

of the Jurassic to Lower Cretaceous period. In the area in question this rises to a height of over 800 feet above sea level along the Parker Ridge. The sandstone falls towards the coast, and Blanket Bay cliffs of only a few feet are found, although they vary in height to south of the mouth of Parker River where they give way to dune limestone cliffs, outcrops, and stable dunes. At Cape Otway these cliffs rise to a height of nearly 300 feet.

Soils derived from the parent sandstone largely support forest type vegetation, whereas those of the sandy coastal zones support heathland, woodland , or natural or artificial grassland. Dunes at the Cape support native grass species.

The elevated areas receive abundant rains falling mainly between autumn and early summer. At the Cape Otway weather station rainfall averages 35 inches per annum, but rises to twice this figure on the Parker Ridge. A 70 inch rainfall is a high one, capable of supporting a luxuriant vegetation.

THE COASTAL STRIP

Calcareous cliffs at Cape Otway graduate to less precipitous slopes toward Crayfish Bay where stable dunes succeed. From just south of the mouth of Parker River, sandstone cliffs occur with frquent rock shelves abutting the ocean. These cliffs extend to Blanket Bay and beyond.

Vegetation along the coast is varied but with consistent dominant species.

At Cape Otway, massive cliffs rise sheer from a reef strewn sea to a height of 200 feet. These soft limestone rocks and dunes were formed in comparatively recent geological times when a receeding sea allowed windblown calcareous material to form these deposits.

Considerable influences of wind and wind borne salt operate at the Cape with an unchecked south-westerly wind system. In spite of this, mutually protected plants can attain a height of about 10 feet, the dominant species being Leucopogon parviflorus (Coast Beard-heath), Acacia longifolia v. sophorae (Coast Sallow-wattle), Leptospermum laevigatum (Coast Tea-tree), Myoporum insulare (Boobialla), Olearia axillaris (Daisy-bush), Helichrysum cinereum

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION(Cont'd.)

(Coast Everlasting), as the most abundant shrubby species. Acacia myrtifolia (Myrtle Wattle), Olearia glutinosa (Daisy-bush), Exocarpus syrticolus (Coast Ballart) are less abundant but locally common. The sub-shrubby Senecio ovaria (Coast Groundsel) is abundant. Acacia myrtifolia, Olearia glutinosa and Exocarpus syrticolus are the most interesting shrubs here. Myrtle wattle is a curious form with remarkably thick leaves and pods confined to the Cape, Olearia glutinosa is a showy species of limited distribution, and the Exocarpus a semi-parasite also is limited in distribution locally and has attractive fleshy fruits.

Several spontaneous exotics are found on the east side of the Cape on scree slopes, and these are the lime loving South African Boxthorn (Lycium ferocissimum), and a rare spontaneous occurrence of the garden Stock (Matthiola incana) of European origin. Both have escaped from the settlement on the cliff tops above. The stock grows on scree slopes and the very robust plants are showy in bloom with massed purple flowers.

Leucopogon parviflorus, Olearia axillaris, Helichrysum cinereum, and Myoporum insulare dominate the vegetation along the rest of the coast, but many other shrubby species occur there too.

Clearing has occurred from Pt. Franklin to Cape Otway of the woodland, and a farm exists at Crayfish Bay, but pastures are unimproved and used for grazing cattle which wander freely over a large area of pasture, woodland and dune. These cattle have altered the vegetation of the cliffs by trampling, causing erosion, and facilitating the spread of exotic weeds, very prevalent here. The Crayfish Bay settlement and its trappings, with human traffic, has also affected the vegetation for the worse, and the woodlands where cattle penetrate are also invaded with exotics. Squalid settlement at Blanket Bay has destroyed the appearance of this place, and exotic weeds flourish. Some unnecessary clearing of heathland has also taken place.

Other shrubby species along the coast include Bursaria spinosa (Sweet Bursaria) of the sandstone cliffs, Leptospermum pubescens (Woolly Tea-tree), confined to a small stand on moist cliffs below Parker Hill where two other noteable species occur. These are Hibbertia aspera (Guinea-flower), a rare species along this part of the coast which grows in tangled masses beneath the tea-

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

tree, and Correa backhousiana. The small stand of Correa here is the only known occurrence in Victoria, and was discovered in December 1969. The shrubs grow just above the beach sands and flower profusely in autumn. Correa alba (White Correa) grows with its congener, but this is also frequent right along the coast.

Pultenaea canaliculata (Bush-pea) is restricted to a small area on cliffs just east of the Cape and is a comparatively rare coastal species. Calocephalus brownii (Cushion Bush), typical of the coastal vegetation is frequent and conspicuous with silvery foliage. At Crayfish Bay, Pimelea glauca (Smooth Rice-flower) is showy along the cliffs with the pink flowered legume Lotus australis and Acrotriche affinis (Honey-pots) a prostrate cliff dweller. Pultenaea tenuifolia (Slender Bush-pea) is also found here and at Blanket Bay. Herbs at the Cape include Stackhousia spathulata (Coast Stackhousia), and Cynoglossum australe (Austral Hounds-tongue), both locally frequent. A very robust luxuriant form of Pelargonium australe (Austral Storks-bill) grows on dunes near Pt. Franklin. Other shrubs and herbs from the heathlands make an appearance on the sandstone cliffs such as Goodenia ovata (Hop Goodenia).

Casuarina stricta (Drooping Sheoak) must be mentioned as a tree common along the coastal cliffs and a little way inland from the Cape to Blanket Bay where it forms the most extensive stands. Pomaderris oraria (Coast Pomaderris) is a feature of the slopes of Parker Hill, but has not been noted elsewhere. Clematis microphylla (Small-leaf Clematis) is occasional along the coast.

Very interesting littoral and cliff soaks are found from the Cape to Crayfish Bay, and these have a distinct range of species, some not encountered elsewhere. The curious soak near the lighthouse supports a very dense growth of cushion like Juncus spp. (Rushes) chief of which is J. pauciflorus (Loose-flower Rush). The littoral soaks just above the beach sands at Crayfish Bay are drainage points of the seaward sloping coastal pastures. Sedges such as Scirpus cernuus (Nodding Club-rush) and S. americanus (American Club-rush), Carex iynx, with the dicotyledons Samolus repens (Brookweed), Cotula coronopifolia (Water Buttons), mosses and algae comprise these interesting communities. Sedge flora of the area is quite rich and along the coastal sands at the mouth of Parker River and Blanket Bay Carex pumila (Strand Sedge) is abundant. Stable dunes along the coast often support a vegetation of Festuca littoralis (Coast Fescue).

COASTAL WOODLANDS AND PASTURES

Coastal woodlands and pastures occupy a strip from Cape Otway to the mouth of Parker River. The woodlands have, and still are being cleared, and the rough pastures created are used to graze cattle which are free ranging throughout a large area. The animals have exerted an important influence over the plant life particularly in that they have facilitated the spread of weeds which are abundant in many places. Some species are closely integrated with native species in the pastures and woodland.

A strip of grassy dune country probably divided the woodland and coast, but clearing of the trees makes the original woodland boundaries difficult to define in some spots.

The woodland is dominated by Eucalyptus viminalis (Manna Gum), with Euc. obliqua (Messmate) mixing towards the inland boundaries. The trees decrease in size towards the coast and severe wind planing effects are obvious. Some are prevented from rising above the brow of the undulating sand hills because of wind. At a maximum, trees in the woodland reach heights of not more than 60 feet.

The areas that have been cleared may be thickly covered in Bracken (Pteridium esculentum) or Poa australis (Tussock Grass) and Lomandra longifolia (Spiny-headed Mat-rush) may be important. Weeds are closely integrated and include Hypochaeris radicata (Flat Weed), Arctotheca calendula (Cape Weed), Sporobolus africanus (Rat-tail Grass) and Lagurus ovatus (Hares Tail). The last species is particularly abundant along the coastal dunes, cliffs, and roadsides. Other grass such as Lolium perenne (Perennial Rye-grass) are frequent in the fenced pastures at Crayfish Bay which are part of a farm of sorts.

Away from the coast, the woodlands may graduate to heathland or heath woodland as on the lower Parker River. Some of this has been cleared and bracken (Pteridium esculentum) is now the absolute dominant. The woodland may have a shrubby understory, often dense because of fires and here Acacia verticilata (Prickly

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

Moses), Leptospermum juniperinum (Prickly Tea-tree), Pultenaea daphnoides (Large-leaf Bush-pea), and Busaria spinosa (Sweet Bursaria) are dominant. Lesser shrubs particularly legumes are common, and many herbs including some species of orchids of which Acianthus spp. (Gnat and Mosquito Orchid) and Chiloglottis reflexa (Autumn Bird-orchid) are commonest. The heath woodland relieved by the valley of the Parker River in its lower section gives way to forest and heathland or forest at its other boundaries. A mixture of plant species from each vegetation type is found in these intermediate zones.

WET HEATHLAND

A fascinating association of plants exists on sandy soils lying roughly between the Parker River valley, Blanket Bay Creek and the Parker (Ridge) Road. Because of its elevated position, the area receives abundant rains, and this in combination with the sandy soil produces a wet heathland vegetation. The area is comparatively flat or plateau like.

Myrtaceous plants dominate the vegetation with Leptospermum juniperinum (Prickly Tea-tree) co-dominant with Melaleuca squarrosa (Scented Paper-bark). These form extremely dense scrub with an overstory of Eucalypts, dense in places, and sometimes discontinuous. The principle species is Eucalyptus kitsoniana (Bog Gum or Gippsland Mallee) which form pure stands or is associated with E. ovata (Swamp Gum), E. baxteri (Brown Stringybark), or E. gonicalyx (Long-leaf Box). The latter species is much less common than the others, but all may form pure stands with Leptospermum and Melaleuca as an understory. Eucalyptus kitsoniana is a very interesting species; this occurrence is the westernmost of its range, and here too it attains its best development. Blakely in "A Key to the Eucalypts" describes it as a dwarf tree to 30 feet in height, but in the Otways the species reaches heights of up to about 80 feet growing in dense stands. On more open sites it grows about 20-30 feet. E. ovata also reaches maximum development growing to about 80 feet also, unusually large (at least in Victoria) for this tree.

On some sites the Bog Gums do not have a shrubby understory of Leptospermum and Melaleuca, but Gahnia clarkei (Tall Saw-sedge) and Blechnum procerum (Hard Water-fern) grow profusely. Such

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

communities seem to occur on sloping sites at the fringe of the wet heathland association at the heads of creeks which drain the elevated heathland. The trees here present a striking appearance with smooth tan coloured bark contrasting with the vivd green ferns and sedges. Tree-ferns (Cyathea australis) may grow in the creeks.

The Leptospermum and Melaleuca beneath the forest Eucalypts, or in pure stands, also attain maximum developments far exceeding the usual. Beneath the gums the former can grow to 50 feet and the latter to 30 feet, or in pure scrub to 20 feet. Extensive masses of Bauera rubioides (Wiry Dog-rose) and Bossiaea cinerea (Showy Bossiaea) are usual beneath Leptospermum and Melaleuca or Gleichenia spp. (Coral-ferns). All of these can grow to 10 feet and are often extremely dense. Gahnia siberiana (Red-fruit Saw-sedge) is common also, its long dark inflorescences emerging from the scrub cover where it is lower. Leucopogon lanceolata (Beard-heath), Banksia marginata (Silver Banksia), Dillwynia glaberrima (Smooth Parrot-pea), Sprengelia incarnata (Swamp Heath), and three other heaths, Epacris lanuginosa (Woolly Heath), E. obtusifolia (Blunt-leaf Heath) and E. impressa (Common Heath) are frequent shrubs, but usually do not grow as high as the dominant scrub.

A ground flora of Calophorus lateriflorus (Tassel Rope-rush), Ampaera xiphoclada (Broom Spurge), and Selaginella uliginosa (Swamp Selaginella) with other species at roadsides where light penetrates, provides a continuous ground cover. Mosses are important here also. Sphagnum logs are apparently rare and Drosera binata (Forked Sundew) grows in these sites. Goodenia ovata (Hop Goodenia) is co-dominant with Tetrarrhena juncea (Forest Wire-grass) on recently fired sites beneath an overstory of Eucalyptus ovata. This type of vegetation occurs on the fringes of some of the wet heathland.

HEATHLAND

Drier heathlands occupy extensive areas, the largest of which is located from Blanket Bay southwards with a gentle slope towards the sea. These areas are comparatively rich in plant species. Open or "short" heath is interspersed with small stands of Eucalypts forming heath woodland. Forest species occur in gullies where short streams drain the slopes.

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

Eucalyptus baxteris (Brown Stringybark), and E. obliqua (Messmate) are the tree species here, and a very dense scrub up to 5 feet is composed of Leptospermum juniperinium (Prickly Tea-tree), Casuarina paludosa (Swamp Sheoak), Acacia verticillata (Prickly Moses), Melaleuca squarrosa (Scented Paper-bark), Hakea ulicina (Furze Hakea), Pultenaea daphnoides (Large-leaf Bush-pea), Banksia marginata (Silver Banksia), Leucopogon lanceolata (Beard-Heath), Dillwynia glaberrima (Smooth Parrot-pea), and Xanthorrhoea australis (Austral Grass-tree). Sedges such as Gahnia radula (Common Saw-sedge) is plentiful, and many lesser shrubs are found (see plant list).
At the coast on sandstone cliffs some of these heathland plants are found with typical maritime species.

(To be concluded.)

* * * *

BLACK SNAIL OF THE OTWAYS - VICTAPHANTA COMPACTA

By Frances Poole

On one of the campouts in the Otways we came across several black snails, these differed from the ones that had been found at our Marysville weekend, the foot frill being black or very dark grey, whereas the Marysville snails had a bright orange foot-frill; in all other respects they seemed to be the same.

This called for some research to be done, and the name of the Otways snail is "Victaphanta compacta", the shell slightly smaller, but one would need the two shells to see any difference. The areas they are found in do not overlap in any way. The main food sources of these carnivorus snails are earthworms and other snails; they live in the rain forests and can usually be found under fallen logs and leaves.

Reference: The Victorian Naturalist Vol.87 No.9.

* * * *

FERNS OF THE DISTRICT - PART 3

By E.G. Errey

OTWAY FERNS

Plant habitats in the Otway Ranges include widely varying types, from coastal cliffs and heathlands swept by salt-laden winds to dense rain-forest areas where neither wind nor sun can penetrate.

It naturally follows that plant life in great variety can be found there. Even single species sometimes exhibit remarkable differences within a small area. For example, the Red Ironbark, that grows as a substantial forest tree on the hills behind Airey's Inlet, is kept down almost to shrub proportions where storms and salt spray exert their influence close to the exposed shore line.

Fern species, too, vary in size and other characteristics according to whether their environment is congenial or harsh, and this has sometimes to be considered when trying to establish their identity.

Ferns in general are happiest where conditions are damp, cool and shaded, and there are extensive areas of this type within the Otway forests. Some species, though, and Bracken Fern is not the only one, prefer exposed, often rather dry territory, where they can develop without too much competition.

PLANTS AS HOSTS

Maidenhair, so popular as a pot plant and a favorite in floral sprays, likes a cool situation, damp rather than wet, but not in heavy shade. Other equally dainty ferns are epiphytic, revelling in deep shade on fallen logs, tree-fern trunks or moss-covered butts of Myrtle Beech.

Such epiphytes are not parasitic - that is, they do not rob the host plant of nourishment. Their rhizomes and roots can easily make their way through the moist fibrous or rotted material without disturbance from ground-foraging birds, bandicoots and such-like.

But it is not only microscopic fern spores that lodge and develop in tree-fern fibre. Often blackwood, coprosma, hazel and pittosporum seeds germinate there, and from a position perhaps

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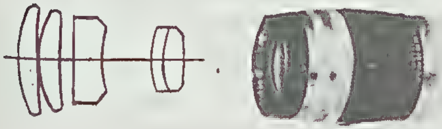

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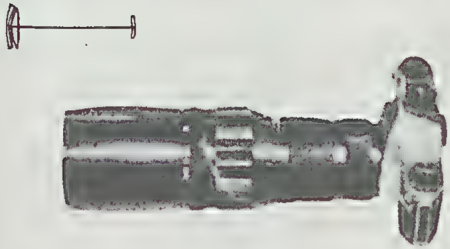

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135 mm, 200 mm, 300 mm, 500 mm

FERNS OF THE DISTRICT (Cont'd.)

ten or fifteen feet above ground level, send roots down through the outer layers of a fern trunk, eventually to choke out the fern and unite to form a fluted trunk supporting the tree high above.

Even Myrtle Beeches, hosts to numerous fern species in the dripping depths of the forest, sometimes claim repayment. In the Calder River district we found a stout tree-fern still thriving although two stripling Beeches, one about four inches in diameter and a good ten feet up, were firmly established upon its trunk.

THE LARGER FERNS

The first ferns to attract attention along the Otway roads are the tree-ferns, of which there are several species. The most prominent will be the Rough Tree-fern, for this is the hardiest, growing in the open forest and often surviving on exposed hillsides after other vegetation has been removed. Its "roughness" is apparent when the rasp-like butts of the fronds are handled.

In contrast are the frond-butts of the Soft Tree-fern, which have a covering of soft reddish-brown hair, a feature also of the uncurling fronds. The outside of a Soft Tree-fern trunk is a matted mass of fibrous rootlets adding greatly to the diameter near the ground. This forms an ideal situation for the growth of epiphytic ferns, mosses and lichens, especially as this species favours the damper, more sheltered parts of the gullies. The Rough Tree-fern on the other hand, has a harder trunk with more evidence of old frond butts remaining.

Further differences appear when the underside of matured fronds is examined for the spore cases. These are green when immature and rusty brown when the spores are ripe. Soft Tree-fern bears its spore cases along the margins of the pinnules, while Rough Tree-fern and its allies have theirs in parallel rows on either side of the midribs of the pinnules. This difference shows the two to be in separate families. The former is a Dicksonia and the latter a Cyathea.

Two other Cyatheas grow in the Otways though they are both rare in comparison with the tree-ferns already mentioned. One is the Slender Tree-fern, whose tall slim stem towers to thirty or

FERNS OF THE DISTRICT (Cont'd.)

forty feet though only about four inches thick. The second is the very rare Skirted Tree-fern, the only fern restricted to Victoria, where it is confined to a few districts though common enough in one or two Gippsland jungle spots. Instead of shedding its old fronds, this fern holds them as a voluminous skirt clothing most of its trunk.

Though not a tree-fern, King Fern has a broad massive butt from which several clumps of long fronds may arise. The fronds are only twice divided as against three times in tree-ferns, and the spore cases when present cover the underside of the lower pinnae, instead of being arranged in regular rows.

SHIELD FERNS

Mother Shield Fern has the appearance of a small tree-fern, as it grows a trunk up to a foot high, and bears fronds three to four feet long. This species, and one of the Spleenworts, have the peculiarity of producing small bulbils in the axils towards the ends of mature fronds. These develop into new fern plants, sending out tiny fronds, and, where resting on the ground, growing roots much as a strawberry runner does. This accounts for the common name "Mother" applied to these two species. The name Shield Fern comes from a shield-like covering to the spore cases, which shrivels as the spores ripen. This shield can clearly be seen with the aid of a small hand lens. (There are, however, other genera with a membrane or indusium covering the spore cases.)

Two other members of this group, Shiny and Leathery Shield Ferns, are common in the Otways, the second one being epiphytic.

WATER FERN GROUP

The Blechnums or Water Ferns make up Victoria's largest genus, with seven species common in the Otways. Several of these are frequently grown in ferneries or gardens, and some flourish in shady spots even without the usual gully dampness.

These plants, except for one species, Gristle Fern, are peculiar in having two types of frond, the spores being produced on separate fertile fronds, of which the pinnae are much narrower than those of

FERNS OF THE DISTRICT (Cont'd.)

the barren fronds. Occasionally one finds a compromise, half of the frond being of each type, giving it a blighted appearance. Gristle Ferns, Hard and Soft Water Ferns and the Fishbone Water Fern are the most common species of this group.

Closely related to the Water Ferns are the Rasp Ferns, of which two species are found in the Otway Ranges.

BRACKEN AND ITS ALLIES

Bracken Fern is too well known to need description and it is the only species not blessed with official protection. There are, however, several related but less troublesome genera that may be overlooked in the belief they are Common Bracken. Some are Ground Ferns, and are often found growing with Bracken in relatively open areas. Common Ground Fern, also known as False Bracken or as Rainbow Fern, is yellowish green in foliage and much softer in texture than the pest species.

Another fern, not so closely related, is Tender Brake (or Tender Bracken), found as its name would imply, in more sheltered places, under creek banks for example, where moisture is abundant and drying winds cannot reach.

Often growing with Ground Ferns and Bracken in rather wet spots is Bat's-wing Fern, easily recognised by its shape and bluish-green fronds.

FAN AND CORAL FERNS

Two very attractive ferns, with a distinctive frond pattern are the Coral Ferns and Fan Ferns. With these the frond divides at a V-shaped fork into two secondary pinnae which in turn fork into tertiary pinnae, all three sections carrying pinnules which when mature bear the spore cases. In the Coral Ferns the pinnules are further divided into lobes each with a group of spore cases. Fan Fern pinnules are entire, the spore cases lying in rows on either side of the vein. The common Otway species is Silky Fan Fern, with pinnules set at a sharp angle to the rachis.

The branching nature of these ferns tends to cause rather a tangle, Scrambling Coral Fern in particular twining amongst scrub sometimes to ten feet or higher.

FERNS OF THE DISTRICT (Cont'd.)

A FEW TECHNICALITIES

Perhaps this would be an appropriate stage to introduce certain technicalities that have been avoided too long. Because ferns are different from flowering plants in so many aspects, they require an additional set of botanical terms to cope with these differences. Most of these can best be explained by means of sketches, but for the spore system an explanatory note seems necessary.

I have been using the term "spore cases" rather loosely in referring to the green or brown patches on the back of fronds. These patches, sometimes circular, sometimes oval or linear, are really groups of spore cases, which when magnified look like clusters of insect eggs. Each cluster is known as a "sorus", for which the plural is "sori". A single spore case is a "sporangium", (plural "sporangia"), and contains numerous microscopic spores.

On some species, Shield Fern for example, the sori are protected by an "indusium" of some form. This may be a simple membraneous covering of varying shape, or it may be a pouch-like receptacle.

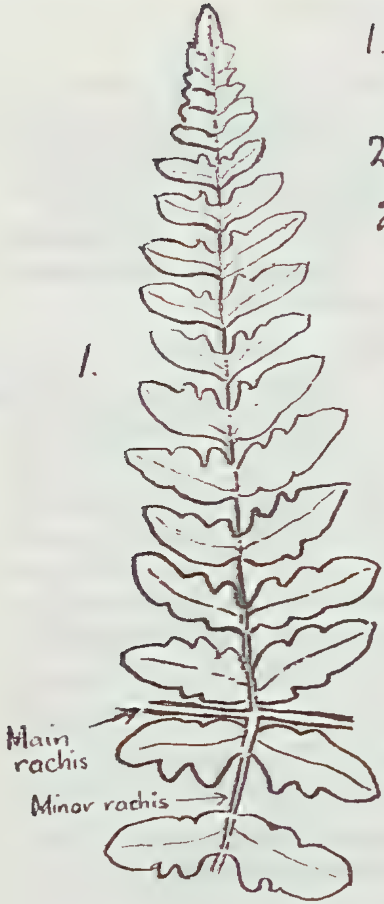
EPIPHYTES

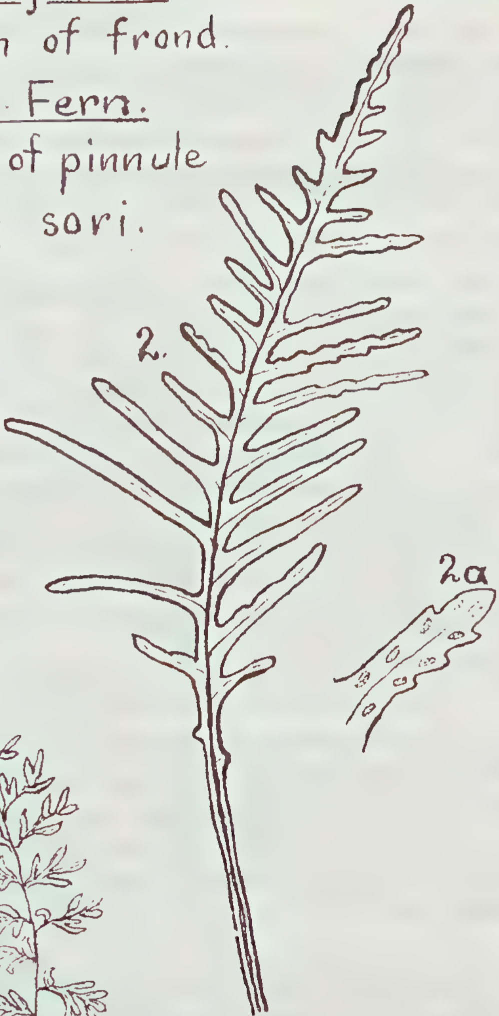
Along the dimmer and damper gully floors, where only filtered sunlight penetrates and the atmosphere is always moist, we find a flora very different from that of raodside and open woodland. These are the epiphytic plants briefly referred to earlier, and include, beside ferns in great variety, many species of moss, fungi, lichens and even orchids.

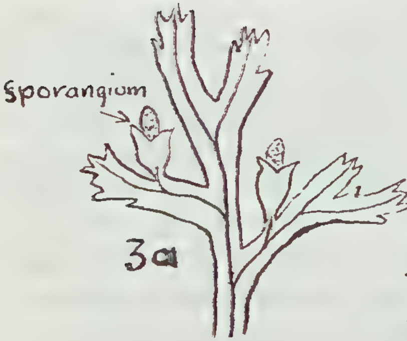
Not all such ferns are tiny. Some have fronds up to three or four feet in length. One of these is Mother Spleenwort, mentioned before as a species that reproduces by bulbils on the older fronds as well as by spores. This fern has long been popular as a pot-plant. The name Spleenwort comes from an old belief in the medicinal properties of the family in the treatment of diseases of the spleen.

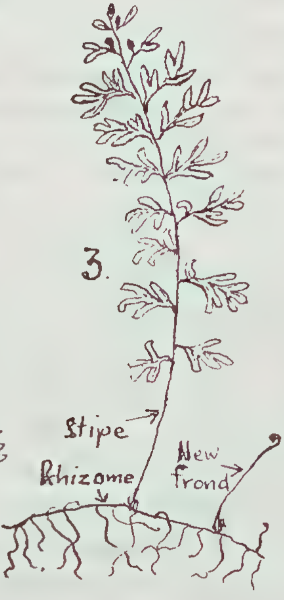
Another of the same genus, but much smaller, is the Necklace Fern, sometimes found as an epiphyte but more often growing among rocks. This species has weak trailing fronds extending into a tail which frequently takes root. Pinnules are fan-shaped, rather like those

1. Bat's-wing Fern
Section of frond.
2 Gipsy Fern.
2a Back of pinnule
showing sori.



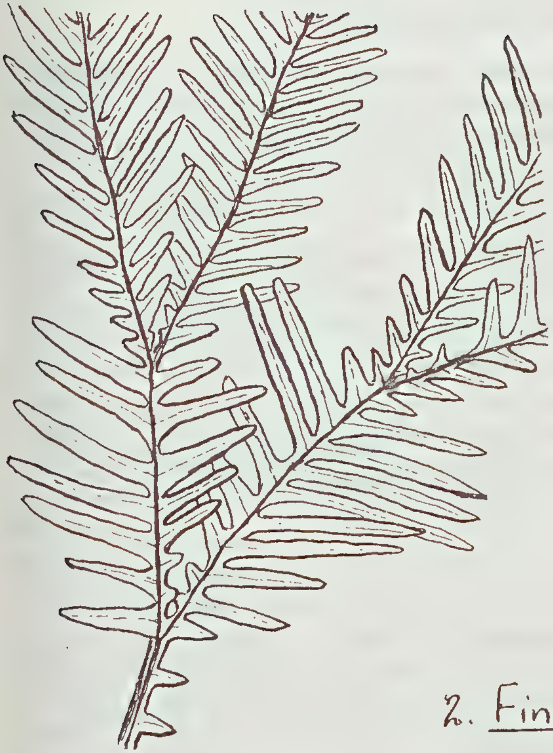




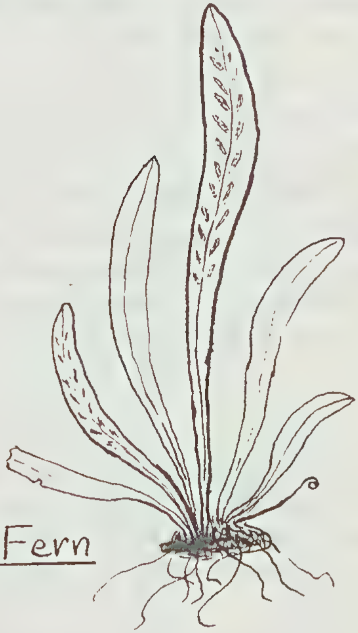


3. Common Filmy Fern
3a. Tip of frond X 4

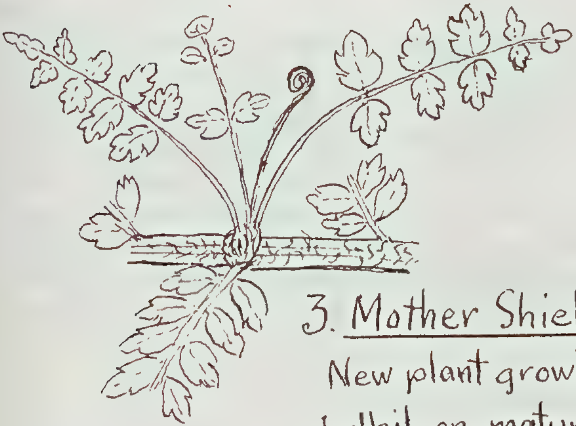
E.G.E. 1970



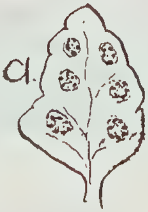
1. Silky Fan Fern
showing forking pattern.



2. Finger Fern



3a.



3. Mother Shield Fern.
New plant growing from
bulbil on mature frond

3a. Sori on back of pinnule.

E.G.E. 1970.

FERNS OF THE DISTRICT (Cont'd.)

of Maidenhair, but sori are not on the edges.

Leathery Shield Fern is another of the larger varieties with fronds a foot or more long. It is found mainly on trunks of Soft Tree-ferns, whose fibrous butts give foothold to so many of these off-the-ground species. Distinguishing features are brown papery scales on the main rachis, wings on minor ones, and raised midribs.

Gipsy Fern is a smaller plant, rather stiff and leathery to feel, and with fronds that vary considerably in size and divisions. But the pinnae bases continue down the stem, forming a distinctive wing on each side of the stipe.

Much easier to recognise is the Finger Fern, for the fronds appear as plain light green fingers poking out from among darker feathery ferns and mosses. Narrow sori are set at a sharp angle on each side of the midrib.

FILMY FERNS

This is Fernland in miniature, where dainty fronds only two or three inches long, often less, stand out bravely in a world of their own, among mosses, lichens, clubmosses and allied plants, forming a green curtain, dense yet lacey, on saturated logs and fern trunks.

Filmy is an apt title, for the translucent, almost transparent, frond sections are only a single cell thick. Identification is not easy. Four species are listed for the Otway region. We collected five or six that we took to be Filmy Ferns, but whether we have added to the official list or have gathered Bristle Ferns, Clubmoss, Fork Ferns and other similar plants in our collection remains to be seen. Of one thing we are certain. There is a fascination in this green fairyland that will provide many hours of enjoyable study in the years ahead.

Reference List of Common and Botanical Names.

Red Ironbark	Eucalyptus sideroxylon
Bracken Fern	Pteridium esculentum
Maidenhair	Adiantum aethiopicum
Myrtle Beech	Nothophagus cunninghamii

FERNS OF THE DISTRICT (Cont'd.)

Blackwood	Acacia melanoxylon
Coprosma	Coprosma species
Hazel	Pomaderris aspera
Pittosporum	Pittosporum species
Rough Tree-fern	Cyathea australis
Soft Tree-fern	Dicksonia antarctica
Slender Tree-fern	Cyathea cunninghamii
Skirted Tree-fern	" marcescens
King Fern	Todea barbara
Mother Shield Fern	Polystichum proliferum
Spleenworts	Asplenium species
Shiny Shield Fern	Lastreopsis shepherdii
Leathery Shield Fern	Rumohra adiantiformis
Gristle Fern	Blechnum cartilagineum
Hard Water Fern	" procerum
Soft Water Fern	" minus
Fishbone Water Fern	" nudum
Rasp Ferns	Doodia species
Common Ground Fern, False Bracken or Rainbow Fern	Culcita dubia
Tender Brake	Pteris tremula
Bat's-wing Fern	Histiopteris incisa
Coral Ferns	Gleichenia species
Fan Ferns	Sticherus species
Silky Fan Fern	Sticherus tener
Scrambling Coral Fern	Gleichenia microphylla
Mother Spleenwort	Asplenium bulbiferum
Necklace Fern	" flabellifolium
Leathery Shield Fern	Rumohra adiantiformis
Gipsy Fern	Ctenopteris heterophylla
Finger Fern	Grammitis billardieri
Filmy Ferns	Hymenophyllum and Mecodium species

* * * * * *

OTWAY'S ERA - BIRDS OF YESTERDAY AND TODAY

By Jack Wheeler

The late Sir Charles E. Belcher, a noted bird enthusiast of the Geelong district during the late 1890s, and the early years of this century, had an outstanding knowledge of local birdlife and it was indeed fortunate that he left us his legacy of this knowledge, by publishing in 1914 'The Birds of the District of Geelong, Australia'.

The information as published 56 years ago is still very much alive, and naturalists of today still regard it as a classic. It is no way scientific and its simple references are a guide to the unskilled as it is also to the skilled.

Sir Charles did his bird observing the hard way, by foot or by the aid of a horse he called "Ginger", and his closest friends, N.M. Freeman and B.E. Purnell, often accompanied him.

Of the 244 species commented upon in his book, 93 are specifically mentioned as occurring in some part of the Otway Ranges, and the purpose of this article is to draw a comparison between the "Belcher" era, and as we know it today.

Twenty seven species are commented upon - the first name is the common vernacular as used by Sir Charles, then follows the present day vernacular (if any change), the scientific name; then details from Sir Charles's book and particular comment by Sir Charles is underlined - and finally my own comment in brackets.

The order of listing is followed as in the book and not in strict checklist order.

Painted Quail: Turnix varia. Referred to as the 'bush' quail and as being recorded in the Airey's Inlet area. (It is still reasonably common in the Airey's Inlet district, particularly that type of habitat which exists in the recently proclaimed Angahook Forest Park.)

Peaceful Dove: Geopelia placida. A pair are listed as being seen at Airey's Inlet in 1904. (During recent years odd sightings have been made at the You Yangs and on the Bellarine Peninsula. There is no regularity about the sightings, so are considered as accidental.)

BIRDS OF YESTERDAY AND TODAY (Cont'd.)

Spotted-shouldered Dove (Diamond Dove): Geopelia cuneata. A lone bird was recorded as being shot at Bambra by Mr. Mulder. (Like the previous species, such records so far south are considered accidental.)

Sooty Oystercatcher: Haematopus unicolor. Listed as occurring on the rocky shores of Apollo Bay and Lorne. (Never common, odd birds are still to be found in these localities.)

Hooded Dotterel: Charadrius cucullatus. Sir Charles wrote: "*I do not know a more charming little bird than this representative in Australia of the Ringed Plover of Europe*". Mentioned as being found on the beaches at Lorne and Airey's Inlet. (Popularity by the public for these beaches has no doubt driven them further afield and today I only know of them occurring between Breamlea and Point Lonsdale in the Geelong Region.)

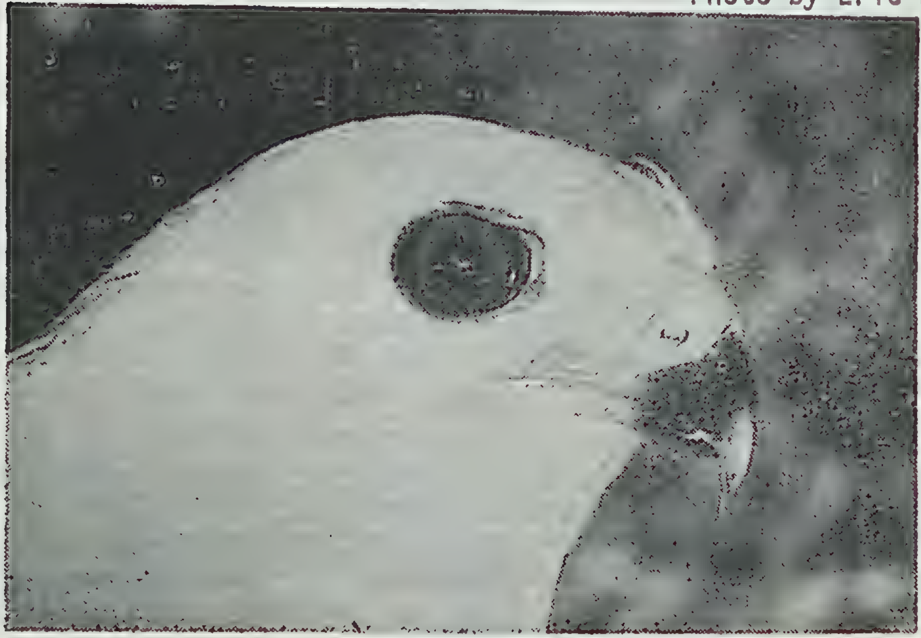
Nankeen Crane or Night Heron: Nycticorax caledonicus. Listed as rare and a pair for many years were to be seen in iron-barks on the side of Mount Berthon, Airey's Inlet. (Sightings could still occur along the upper region of the Barwon or Anglesea River. A thriving colony at Queens Park, Newtown, has built up the local population in recent years.)

Australian Gannet: Sula serrator. No mention is made of Gannets west of Torquay other than - "*I believe there was formerly a nesting-place of Gannets on Laurence Rocks, off Portland. The nearest really flourishing present-day colony is on Cat Island in the Ferneaux Group. Here in November, 1901 I saw the birds lined up in hundreds*". (Today the Cat Island rookery has almost been wiped out by poaching fishermen whilst Lawrence Rocks - now spelt this way - has a thriving rookery of some 600 breeding pairs. Gannets are regularly seen today right along the coast of the Otways.)

White Hawk (White Goshawk): Accipiter novae-hollandiae. Sir Charles wrote this - "*It is one of our rarest hawks. They shoot it because it is beautiful, making to themselves the baseless excuse that it is a hawk, and that all hawks are hurtful - which they are not*". (Fortunately today these magnificent hawks are still with us, and they still have a stronghold in this part of the State. During the winter they appear to move to the foothills,

FLAME ROBIN

Photo by Eric Bound.



WHITE GOSHAWK

Photo by Trevor Pescott.

BIRDS OF YESTERDAY AND TODAY (Cont'd.)

particularly on the northern slopes, and some do move away from the Otways to the plains north of these ranges.)

White-bellied Sea-eagle: Haliaeetus leucogaster. Sir Charles wrote - "In 25 years I have never met an example of it here - Eagle Rock, at Airey's Inlet - Eagle's Nest Rest one sees on some of the old charts - is so called from having once been the nesting-place of this Eagle". (For the Geelong region I know of only two records of this species, Lake Connewarre in 1958 and Cape Otway in May of this year.)

Powerful Owl: Ninox strenua. A Mr. Berthon shot a lone bird at Airey's Inlet in 1895 and at Bambra another was shot, being in the collection of Mr. Mulder. Sir Charles wrote - "These are the only instances of this bird's occurrence in the district of which I know; but there must be pairs scattered through the forest, as it is a stationary species". (Today, Powerful Owls are not uncommon and reported from Otway region.)

Masked Owl: Tyto novae hollandiae. Mr. Mulder's collection contained one bird shot near Bambra. (A very rare species in this State.)

Black Cockatoo (Yellow-tailed Black Cockatoo): Calypyorhynchus funereus. Sir Charles recorded - "in 1894, selectors at Bambra said that the birds then bred in the depths of the forest in holes in giant gums". (This species is still to be found in the Otways, and once the plan for planting pines on the northern Otways eventuates, large flocks could occur.)

Corella: Kakatoe tenuirostris. Sir Charles wrote this - "Mr. Mulder assures that he has seen large flocks of them at Bambra, and that they have a chuckling call, very distinct from that of the common White Cockatoo". (No large flocks exist there today, but stray birds could move in with cockatoos and flocks of Corellas do frequent Lake Bolac and Glenthompson, not so many miles to the north of the Otways.)

King Parrot: Aprosmictus scapularis. Sir Charles said this - "I think this is the most handsome parrot we have seen. At Christmas 1902, Mr. C.T. Seeley and myself walked from Forrest to Apollo Bay, via Mt. Sabine. On the long decline towards the sea, King Parrots were constantly crossing the road in front of us". (They are not

BIRDS OF YESTERDAY AND TODAY (Cont'd.)

that common today, but there is no concern at the present as to their survival in the Otways and appear to be holding their own.)

Blue-winged Parrot: Neophema chrysostoma. (I mention this species as it is one bird not recorded by Sir Charles. Over recent years I have observed them at Airey's Inlet, and only recently three were flushed from the banks of the George River, Lorne. However, Sir Charles does mention the Orange-bellied Parrot (now known as the Orange-breasted Parrot) N. chrysogaster as being recorded at Anglesea - a closely allied species.)

Ground Parrot: Pezoporus wallicus. At Airey's Inlet was the only sighting of this rare species by Sir Charles, one evening during the summer of 1892/93 on the creek across from Mr. Berthon's Wybalenna homestead. (In more recent years, Ground Parrots were recorded at Chapple Vale in the western region of the Otways and today appear to be extremely rare as far as the Otways is concerned.)

White-throated Nightjar: Eurostopodus mystacalis. (This is another species not mentioned in Sir Charles's book, and it appears to be a species only located as for the Otways in recent years. The first indication was a dead bird found between Bambra and Airey's Inlet in 1963, then five years later a breeding pair was located on an ironstone ridge north of Airey's Inlet, and last year another breeding pair with young closer to Airey's Inlet.)

Flame-breasted Robin (Flame Robin): Petroica phoenicea. Sir Charles wrote - "I should not like to say that no Flame Robins ever cross Bass Strait; it is, however, my belief that the majority at least which we see so commonly on the open country about Geelong from April to August, breed in the Cape Otway forest westward from Lorne in the months from October to January". (Today, naturalists still have this thought, and no proof has been forthcoming as to these birds crossing the Bass Strait from Tasmania or vice versa.)

Pink-breasted Robin (Pink Robin): Petroica rodinogaster. Sir Charles mentions the two Victorian species of pink-breasted robins, but he was only sure of the Pink Robin as occurring in the Otways, not the Rose Robin, the second species. (It has now

BIRDS OF YESTERDAY AND TODAY (Cont'd.)

been established that the Rose Robin occurs in the Otways, only to a lesser degree than the Pink Robin, which is still reasonably common there.)

Olivaceous Thickhead (Olive Whistler): Pachycephala olivacea. It was not until 1913 that Sir Charles observed his first Olive Whistler, and Mr. Mulder reported it as nesting regularly in the ranges near Bambra in 1894. (This species is much more elusive than the other whistlers, and could be much more common than we realise.)

Ground Bird or Spotted Ground-thrush (Spotted Quail-thrush): Cinclosoma punctatum. Recorded by Sir Charles as then becoming rare, and was to be seen by travellers travelling from Jan Juc, Anglesea and Airey's Inlet. (This species appears to be holding its own at Airey's Inlet, particularly on the Angahook Forest Park ironstone ridges.)

Geelong Ground-wren (Chestnut-tailed Ground-wren): Hylacola pyrrhopygia. Sir Charles wrote - "On December 29th, 1912, I met with another pair at Airey's Inlet; they were on a piece of scrubby, ferny ground on the hillside between Lugg's and the Lighthouse". It is interesting to note that a pair of this species was collected on the ridge overlooking Point Roadknight and the skins sent to England where Mr. Gregory Mathews declared them a new sub-species of the Red-rumped Hylacola, and named them with the vernacular, Geelong Ground-wren. (These birds are never easy to observe and are still to be found in selected habitat of heath and tea-tree.)

Emu Wren (Southern Emu-wren): Stipiturus malachurus. Recorded by Sir Charles at Anglesea, Airey's Inlet and Wensleydale and is apparent that the species was well established. (Today it appears to be a different story, as development has driven them from haunts where Sir Charles mentions them as being found, and regular sightings are becoming fewer and fewer.)

Rufous Bristle-bird: Dasyornis broadbentii. Sir Charles was well aquainted with this species, and found that from Lorne westwards, it occurred many miles in from the coast. (This bird has been driven from its extreme eastern habitats near Torquay, but is still holding its own elsewhere, and can be heard calling in some of the

BIRDS OF YESTERDAY AND TODAY (Cont'd.)

habited areas of Lorne, wherever a gully exists. It does still occur well inland from the sea as Sir Charles found.)

Tawny-crowned or Fulvous-fronted Honeyeater (Tawny-crowned Honeyeater): Gliciphila melanops. Sir Charles recorded - "This has always been a favourite bird of mine, from the time I first found it, in 1890". (Today, this is one bird which we are very concerned about, as it is rarely found in its old haunts of heathland where it would breed.)

Fire-tailed Finch (Beautiful Firetail): Zonaeginthus bellus. Sir Charles wrote - "In July 1893, I obtained at Airey's Inlet a single bird of this species, which was set up by Mr. Mulder and is now in the Geelong Museum. I never saw it in the district before or since". (The species no doubt still exists in isolated parts of the Otways, but observations are very few and far between. I have not seen it myself in the Otways since 1961.)

Satin Bower-bird: Ptilonorhynchus violaceus. Of this species, Sir Charles wrote - "It is hardly too much to say that this is the most interesting bird to be found in the Geelong district, that very few people know of its existence, and that it is rapidly approaching the point of complete extinction". Mr. Mulder in 1893 reported a 'bower' of this species being built above the ground, in a pine tree (Pinus insignus) across several horizontal limbs at a point close to the main stem. Sir Charles had never heard of this behaviour before, and also he knew of no nest ever being found in the Otways. (To my knowledge, all bowers found in recent times, have been natural ground structures, and I know of no nest as yet. I would say that in some of the more remote areas of the Otways, this species is far from extinction and is holding its own. Only recently I observed two fully plumed males in flight at the ERskine Falls.)

It is apprent that three species of birds, King Parrot, Rose Robin and Satin Bower-bird, which are so well known throughout parts of Gippsland, are in a state of isolation in the Otways and one wonders why Lyrebirds and Pilot Birds are not also found there - or perhaps they did occur there at one stage and have become extinct, long before the 'Belcher' era.

LANDSLIDE LAKE IN THE OTWAYS

By Trevor Pescott

On June 23, 1952, the "Geelong Advertiser" reported the formation of a lake in the Otways; the east branch of the Barwon River was blocked by a landslide which deposited in the valley many thousands of tons of rock and earth.

The lake was formed, it is thought, on the 21st June, during a period of extremely high rainfall which caused the river to flood, and the rushing water apparently undermined the entire hillside, causing an avalanche.

It was not until the following day during an inspection of the Kaanglang Track that the lake was discovered.

This is briefly the history of the formation of the lake, and although the geological data is far more detailed, the prime cause and more importantly the date when the lake came into being are accurate.

The following year, on 6th August 1953, a new report brough headlines to the "Geelong Advertiser"; this report read - "A message received from Melbourne this morning says that the vast natural lake formed by landslides in June last year burst its banks at 11 o'clock last night, sending millions of gallons of water surging down the Barwon River".

The next day, the report read - "Fears of a flood disaster as a result of the collapse of the lake in the Otways were allayed yesterday morning when the water expended its force at Forrest".

All of this is rather melodramatic, but it records the second aspect in the formation of the Landslide Lake - that of a sectional collapse of the wall of the lake.

Now, nearly 20 years since the lake was formed, there is little evidence of the landslide itself, but in 1952 and 1953, a visit to the site of the lake showed the enormous forces that the landslide produced.

My father and I walked into the lake shortly after it was formed, and found a vast bank of deeply fissued earth and rock blocking the valley; huge trees had been splintered, enormous boulders strewn over the ground, and crevaisses many feet deep, some gaping open, others filled with tangles of wattle trees and undergrowth.

LANDSLIDE LAKE IN THE OTWAYS (Cont'd.)

Now, the lake is a place of beauty, a deep and calm expanse of water from which project the dead tops of trees which once grew in the valley.

How deep the lake is, I do not know; I was told by some local G.W.S.T. workmen that it is now "about 80 feet deep, but it was twice that" before part of the wall was washed away.

This last remark undoubtedly refers to the collapse of part of the bank in August 1953, but it is hard to believe that the top 80 feet could be washed away leaving the lower 80 feet in place; perhaps a loose 20 or 30 feet could go, leaving the lower section, but as far as I know no real evidence exists to confirm or refute the comment.

In "Wild Life" September 1953 p.245, there was a report that the lake was dry, but this is far from true.

Over the last few years, Geelong naturalists have often visited the lake, and have found a wide variety of birds and mammals on and around the water.

Mr. G. Gayner reported in November 1968 nests built in the dead trees, and that these probably belonged to Black cormarants; other water birds include Black swans, Coot and Black duck. but the water is probably too deep and cold to be rich in waterbird life.

H.J. Frith in his book "Waterfowl in Australia" 1967, writes "High mountain lakes normally support a few Chestnut Teal and Mountain ducks, but are too deep and cold to be of great value to waterfowl, except in very dry seasons" (description of photograph opposite page 27).

Mammals include Platypus which are reasonably plentiful in the lake, Swamp Rat and probably Water Rat from the margins, and the other Otway mammals including Phascogale, Swamp Wallaby, Echidna and Possums.

Landslide Lake - there was a suggestion at one stage it should be called Lake Elizabeth, this was never formally adopted, nor, I believe, should it be! - is an excellent area, well worthy of a visit, and it is situated perfectly to be preserved as a permanent reserve.

SOME OTWAYS FUNGI

By Gordon McCarthy

The fungi of the Otways varies with the vegetation, which ranges from dry schlerophyl forest in the Anglesea, Airey's Inlet region to wet schlerophyl forest in the Lonre, Apollo Bay, Cape Otway areas.

Last autumn when the Club visited the open ironbark area of the newly formed Angahook Forest Park, a good variety of fungi was noted.

By far the most colourful was the "Cortinars". This name is taken from the Latin word "Cortina" meaning a veil. This veil protects the gills of the immature fungi, and when ruptured hangs like a skirt around the stem of the mature fruiting body.

The "Cortinars" come in an amazing variety of colours, four of which were recorded. The ochry-yellow , Cortinarius ochraceus, which had pieces of leaves and twigs stuck to its glutinous top; the beautiful violet Cortinarius sub-archeri, which is recognised by its purple stem; Cortinarius austro-venetus, the unusual satiny green agaric, and the dry satin deep red Cortinarius sanguineus from which a reddish juice can be squeezed.

Another unusual agaric was Collybia radicata, or Rooting shank, which is white, tall and slender, and when pulled up has a long tail-like root. Omphalia chromacea is a small yellow funnel-shaped fungi with widely spaced gills; this brightened up many a bare patch of earth.

Others included members of the tiny Mycena family, colourful orange Coral fungi (Clavariaceae), numerous orange and red Brackets and several puff-balls and earth stars (Gasteromycetae).

In the wetter areas of the Otways, and this includes the Parker River valley, a beautiful pale violet coral fungi is to be found growing on mossy logs. Another unnamed variety also growing on a mossy log was a large mauve flower-like fungi, the under surface of which was covered with pores. Yet another one growing on rotted wood was like a piece of fur from a Polar bear.

A fascinating little puff-ball was found growing on 2" high stems brown and rough looking like tree fern stems. The small purplish top had a cap similar to the bud cap or operculum of a eucalypt, which was blown off by the emission of the spores. Underneath this

SOME OTWAYS FUNGI (Cont'd.)

cap was a small raised red cross in the centre of which was the spore orifice. Other rotting logs were covered with brackets of the parasitic Rainbow fungus.

In the Maits Rest reserve grows the interesting Cordyceps taylori, largest of the vegetable caterpillars. This fungi parasitises the larva of the Ghost Moth, then sends up an antler-like fruiting body from the mummified grub. This fruiting body contains the spores which will adhere to, or be swallowed by, some other hapless caterpillar.

This is only a very small percentage of the great variety of fungi awaiting the searcher in the Otways.

* * * *

TIGER CAT IN THE BATHROOM.

By Trevor Pescott

On the 1st January, 19 , I received a telephone call from the Postmistress at Tanybryn, near Apollo Bay, Mrs. Sell; would I believe that there was a Tiger Cat in the bathroom, and was I interested in seeing it?

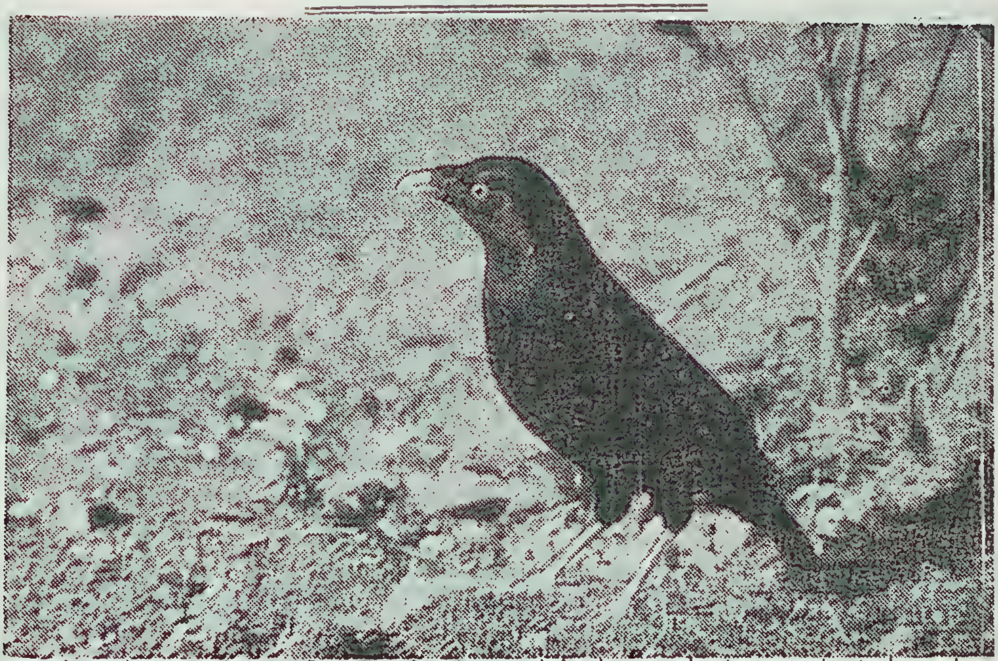
I hastened down to the Post Office, which is on a farm property run by her husband, and at the eastern end of Turton's Track, and sure enough, there beneath the bath was a rather surly Tiger Cat.

The animal had evidently entered through the back door, walked past the sleeping watch (!) dog in the back verandah, then into the bathroom; there it stayed, until Mr. Sell found it later in the morning.

A rather strange New Year's Day visitor!

* * * *

JUNIOR PAGES



Above is shown the male Satin Bowerbird, a photograph taken by Mr. F. James during a trip to Queensland; it shows very clearly the shape of the bird, and if we could use colour we would see that the Bowerbird is a very beautiful shade of deep blue.

In dull light, the Bowerbird appears black, but the blue gloss on the feathers shows up well as soon as the bird moves into a forest clearing or perches on a branch which is in the open.

The female Satin Bowerbird is greyish-green on the wings and back, and underneath she is yellowish-green marked with dark brown; both male and female are about 12-1/2 inches in total length - that is , slightly larger than a Mudlark which is 10-1/2 inches long.

The nest is a rather loosely built, saucer-shape, and made of sticks lined with leaves; two or three eggs are laid, these being dark cream blotched with various shades of brown and grey.

Male Bowerbirds, until they are several years old, are colored like the female.

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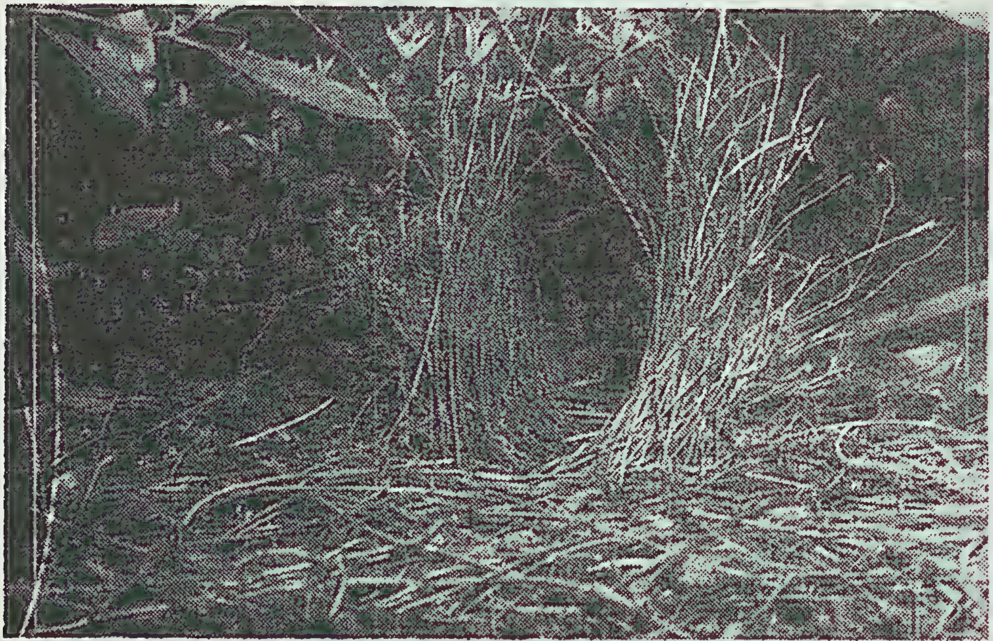
JUNIOR PAGES (Cont'd.)



In the picture on this page is the bower or playground of the Satin Bowerbird, photographed by Mr. T. Pescott in the Otway Ranges where the bird is fairly common.

This is not the nest, but just like the Lyrebird's dancing mound, the bower is a place where the male bird displays to the female; in the bower which is built on the ground, are a number of blue feathers, some bones perhaps, mostly objects which are blue or at least bluish in color.

These are collected by the Bowerbird and they used almost as "toys" by the bird when he is displaying to his mate or threatening a rival male; some rather strange things are collected by the bird, these including bottle tops, knitting needles, blue ball point pens, pegs, anything at all that a careless camper may leave should he camp in Bowerbird country.

The call of the Bower bird include a strange wheezing note, and various other harsh notes; it is quite an accomplished mimic, even though it does not use mimicry very extensively.

* * * *

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Xenica butterfly at Redwater Creek, Otways

Hon. Editor: Trevor Pescott

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The Statements and the opinions contained in the papers published in this Journal are the responsibility of the respective authors.

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COVER PHOTOGRAPH:

Xenica butterfly at Redwater Creek, Otways.

By Trevor Pescott

GEELONG NATURALIST

Vol.7. No.4.

EDITORIAL

February 1971

As a supplement to this issue of "Geelong Naturalist" is a detailed report on the activities of our Club since it was first formed in April 1961 - just 10 years ago.

Seven years ago, this magazine was first printed, and since then a wide range of articles and photographs have been printed, presenting to club members a great deal of useful and readable material.

However, there is never sufficient material on hand to ensure the publication of any one issue beyond that one actually being processed; and this invariably makes editing most difficult, and the result all too frequently is that each copy is late.

So this is an appropriate time to again make this plea - material and photographs are needed urgently so that our May issue can be printed in that month, and not at some later date.

Preferably, all material should be typed - but this not always practicable, so clearly written articles are quite acceptable; photographs should be printed to the exact size of reproduction - generally to fit comfortably as a half-page illustration.

Photographs should be on glossy paper, and of good detail and contrast; line drawings and maps should be of black ink on drawing paper, and also of a size that can be used without alteration.

And may I take this opportunity to thank all who have assisted the Editor by submitting material for publication.

TREVOR PESCOTT

Hon. Editor.

NATIVE MAMMALS OF THE OTWAY RANGES

Compiled by J. Hampton

Over the past two years the Mammal Survey Group of the F.N.C.V. has been carrying out preliminary sample surveys of the native mammals of this region. Six sample areas, representative of some of the different habitats present have so far been surveyed and these have encompassed the area from Jancourt Forest to Cape Otway to Airey's Inlet. The detailed results of these surveys will be published in due course but, in summary, the following eighteen species have been recorded during the camps:-

MONOTREMES

Echidna	Tachyglossus aculeatus (Shaw)
Platypus	Ornithorhynchus anatinus (Shaw)

MARSUPIALS

Brown Antechinus	Antechinus stuartii (Macleay)
Swainson's Antechinus	Antechinus swainsonii (Waterhouse)
Swamp Antechinus	Antechinus minimus (Geoffrey)
White-Footed Dunnart	Sminthopsis leucopus (Gray)
Short-Nosed Bandicoot	Isoodon obesulus (Shaw)
Brush-Tailed Possum	Trichosurus vulpecula (Kerr)
Yellow Bellied Glider	Petaurus australis (Shaw)
Ringtail Possum	Pseudocheirus peregrinus (Boddaert)
Grey Kangaroo	Macropus giganteus (Shaw)
Swamp Wallaby	Wallabia bicolor (Desmarest)
Red-Necked Wallaby	Macropus rufogriseus (Desmarest)
Potoroo	Potorous tridactylus (Kerr)

RODENTS

Southern Bush-rat	Rattus fuscipes (Waterhouse)
Eastern Swamp-rat	Rattus lutreolus (Gray)
Broad-toothed Rat	Mastacomys fuscus (Thomas)

BATS

Gould's Wattled Bat	Chalinolobus gouldii (Gray)

EDITOR'S NOTE: There are other mammal species known from the Otways, but these have not yet been recorded during M.S.G. Campouts.

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION

* PART 2 - FOREST AREAS

By Geoff Carr

The wet sclerophyll forest of the Parker is fringed by heathlands on their seaward side and forest also penetrates other associations in gullies where streams flow through several vegetation types. The forested valley of the Parker River is bordered by heathland in its lower section.

Vegetation here is mainly dominated by the tree species found in the wet sclerophyll forest (except Mountain Ash), and a diverse understory of species common to the wet sclerophyll forest and heathland but with many confined to the forest type. Smaller shrubs and herbs are numerous, and an account of them can be found in the plant list.

WET SCLEROPHYLL FOREST

The climax vegetation of the higher parts which occupies a large proportion of the area being dealt with is the wet sclerophyll forest. These temperate rain forests are the most impressive and interesting of the vegetation types, and are typically associated in the mind with the Otway Ranges, where massive Eucalypts emerge from a dense understory beneath which fern gullies with a prolifery of lower vegetable life flourishes.

Topographically, the country is rather dissected with deep gullies and steep slopes, sharp ridges and spurs. The valley of the Parker River in its middle course descends 1,000 feet from Cape Horn on the Ocean Road to the coast east of Cape Otway, whilst the spur

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* Part 1 was printed in Geelong Naturalist Vol.7, No.3, November 1970; a checklist will be printed later.

Hon. Editor.

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

around the Parker (Ridge) Road rise 900 feet above sea level.

These ridges intercept the moist dominant south-westerly air stream and receive the burden of c. 70 inches of rain per year, which combined with the fertile soils derived from the lower Cretaceous to Jurassic sandstone are capable of supporting a luxuriant vegetation. This is the overwhelming impression to the visitor in the Otways.

The forests are dominated by several species of Eucalypts forming pure or mixed stands. Eucalyptus globulus (Blue Gum), E. cypellocarpa (Mountain Grey-gum), E. obliqua (Messmate), E. regnans (Mountain Ash), E. obliqua x E. regnans ("Otway Messmate"), and E. viminalis (Manna Gum) are the species represented. Mountain Ash, Grey-gum and Messmate are the common species of pure stands Messmate perhaps most of all. The interesting hybrid Eucalypt between Messmate and Mountain Ash is conspicuous along the Parker Road freely mixed with its parent species. It bears a local name of Otway Messmate.

The trees reach massive proportions, often greater than 200 feet, and form a mid-dense to dense canopy related to the effects of fire and timber getting. The old original stands of trees show much damage from the great 1939 fires which burnt out their crowns so that many show dead wood on the uppermost parts. Epicormic shoots seem largely responsible for the present branches on these trees. Increased wind velocity as a result of defoliation in the fires probably hindered growth. Where young regrowth Eucalypts occur, and this is in many areas, they are dense and vigorous- for example along the Parker Road. Fire is the natural agent of regeneration, but disturbance of the vegetation and soil by timber getting produces a crop of seedlings, some of which will attain maturity.

A huge but less common tree is confined to fern gullies such as at Maits Rest, but it can be said to be co-dominant where found. The species is Nothofagus cunninghamii (Myrtle Beech), and magnificent examples of this tree reach 100 feet or more in height, growing mostly with their feet in, or near, the stream at the bottom of the gullies. Unlike the Eucalypts, they are not shaft-like, but extensively and massively branched supporting a spreading crown of fine dark green foliage in contrast to that of the

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

gums. These venerable and ancient giants are the most impressive of the Otway forests.

Beneath the canopy of Eucalypts and Myrtle Beech trees in the gullies, Acacia melanoxylon (Blackwood) forms a lesser and often discontinuous canopy, but specimens reach maximum development in fern gullies where heights of 80 to 100 feet may be obtained. These trees also contrast strongly with the Eucalypts, having dense dark green foliage forming a prominent part of the vegetation.

The chief understory beneath the gums however is the very dense canopy of small trees which grows to about 30-50ft.high at a maximum. A number of tree species are found in this canopy, and it may be variously staged. Pomaderris aspera (Hazel Pomaderris) is often the dominant, especially of sites which have been disturbed. Olearia argophylla (Musk Daisy-bush), Bedfordia salicina (Blanket-leaf), Hedycarya angustifolia (Austral Mulberry), Phebalium squameum (Satinwood), Pittosporum bicolor (Banyalla), Correa lawrenciana (Mountain Correa), Notelaea ligustrina (Privet Mock-olive), Coprosma quadrifida (Prickly Currant-bush), and Helichrysum dendroideum (Tree Everlasting) are the other species of the canopy. Individual species vary slightly in distribution, or have preference for certain conditions, some such as Correa and Helichrysum not being present in deep gullies where Olearia, Bedfordia and Coprosma are more at home.

These trees form a very dense canopy so that very little light reaches the forest floor. Only very shade tolerant plants are able to flourish, and chief among these are the ferns.

Regeneration in this climax wet sclerophyll forest community takes place when vegetation is disturbed,by natural or man induced means, at a rapid rate. Limbs or dead rotten trees (which are frequent) crashing to earth admit light through a broken canopy, and dense growths of herbs soon appear, or tree seedlings lingering in dim conditions leap away with increased illumination. Regeneration is likewise rapid on disturbed ground of roadsides and clearings, with again the lower canopy species soon dominating and forming very dense growths, particularly Pomaderris. Forest trees such as Pittosporum, Nothofagus and Coprosma may begin life as seedlings perched on the trunk of a Soft Tree-fern, through which they grow to the soil, increasing in size until the fern may die. Orange

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

seeds of Pittosporum are frequently seen on tree-fern trunks at Maits Rest in autumn,being deposited there by birds.

In the pristine gloom beneath the lower canopy, a green-brown world of ferns, mosses, liverworts and lichens, flourishes with little representation from the higher monocolyledons or dicotyledons. The forest floor is largely bare of plants except for ferns, but it is covered thickly with litter and a carpet of humus. Numerous epiphytes gain a footing on trunks of tree-ferns, trees (especially Myrtle Beech), rotten logs, rocks and bark.

Dicksonia antarctica (Soft Tree-fern) dominates the gullies and itself forms a canopy further reducing light. They reach about 15-18 feet in height, often in close proximity, and if falling over, continuing to grow, the trunk then turning upwards. Cyathea australis (Rough Tree-fern) is less abundant and grows higher up the slopes and ridge-tops. It can reach a height of 25 feet or more Cyathea cunninghamii (Slender Tree-fern) is a comparatively rare species and grows tallest of all. Specimens at Maits Rest are 50 feet high with extraordinary attenuated trunks. They grow in the wettest of sites. Along the Parker River the very rare Cyathea marcescens (Skirted Tree-fern) grows, but a long search only revealed two specimens, the largest 10 feet high. This fern is the only one endemic to Victoria and is known only from four localities. Very distinctive in appearance, it earns its common name from the persistant fronds which when dead clothe the trunk from top to bottom, hence 'skirted'.

The main ground ferns are Blechnum procerum (Hard Water-fern), Asplenium bulbiferum (Mother Spleenwort), and Polystichum proliferum (Mother Shield-fern), all of which may grow in extensive masses. Trunks of soft tree fern provide ideal support for a wealth of epiphytes with Rumohra adiantiformis (Leathery Shield-fern), Asplenium bulbiferum (Mother Spleenwort) and Microsorium diversifolium (Kangaroo Fern) largest and most conspicuous of these. Filmy ferns, liverworts, and mosses are abundant.

Trunks and limbs of trees are also extensively clothed, particularly Myrtle Beech on which several plants attain maximum development, such as the filmy fern Mecodium rarum, and Asplenium flaccidum (Weeping Spleenwort), one of the most delicately beautiful of ferns. Microsorium is one of the most abundant, and

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

the tough rhizomes completely cover limbs and trunks, often to a great height. Fine colonies also occur high up in crotches of gum trees.

Other epiphytes which occur on trunks of tree ferns or butts of trees include the fern relation Lycopodium varium (Long Club-moss) which is rare, but excellent examples grow at Maits Rest on Soft Tree-fern and Tmesipteris billarderi (Long Fork-fern) a rare primitive, epiphytic on tree-ferns also. Several orchids assume an aerial habit but are usual terrestrial elsewhere and include Corybas dilatatus (Stately Helmet-orchid), Pterostylis pedunculata (Maroonhood), Chiloglottis cornuta (Green Bird-orchid), and Pterostylis obtusa (Blunt-tongue Greenhood). Gastrodia sesamoides (Potato Orchid) is very abundant in some gullies, as at Maits Rest, and this leafless saprophyte can be found in the shadiest of situations. But, gem of the whole forest must be Sarcochilus australis (Butterfly Orchid) which appears rare but is locally plentiful, growing on several host supports, namely Coprosma quadrifida (Prickly Currant-bush), Pomaderris aspera (Hazel Pomaderris) and Olearia argophylla (Musk Daisy-bush). It is situated from three to ten feet above ground level, and the finest specimens grow on Hazel. Flowering period is November to January.

Few monocots, except Uncinia tenella (Delicate Hook-sedge) (usually epiphytic), penetrate the deep gullies, but Carex appressa (Tall Sedge) is not infrequent and Lepidosperma sp. (Sword Sedge) may be dominant on slopes. The scrambling Tetrarrhena juncea (Forest Wire-grass) is also very abundant forming dense entanglements as it ascends shrubs and trees to about 10 feet. It is the bane of Otway foot sloggers, and greatly hinders progression through the undergrowth, especially by roadsides and clearings.

A discussion of vegetation of the Otways would be incomplete without mention of the fungal flora which attains heights of development in these Ranges.Fungi here are no doubt very significant ecologically. Scores of species are found, agrics and polypores the most conspicuous, but hosts of species, often minute, are hidden from view under litter and in dark recesses. Three species stand out amongst the ranks as being most interesting; the first and rarest being Hericiumerinaceum. a parasite of Black-wood which has been likened to a frozen waterfall. It is a fairly

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

large and spectacular species and was discovered by a group of naturalists in November 1968 and constituted a new record for Australia. Only one plant has ever been found. Another species is Cyttaria gunnii, the Beech Orange (from its shape and color), a parasite on the branches of these trees. It is very attractive. Cordyceps taylori (Vegetable Caterpillar) is an extraordinary member of its genus, being large and branched. Parasitic on caterpillars of the Ghost Moth, it is abundant in the fern gullies of Maits Rest.

Vegetation of roadsides, tracks and clearings is often very dense, and in these situations of greater light, or where light penetrates to the ground many additional species appear, although competition is great. Herbaceous species are well represented, particularly on roadside verges, and exotic weeds form a large proportion of these. Trifolium repens (White Clover), Cirsium vulgare (Common Thistle), and the grasses Holchus lanatus (Yorkshire Fog), Dactylis glomeratus (Cock's-foot Grass), and others are frequent. Native grasses and herbs are plentiful such as Ranunculus lappaceus (Common Buttercup) and Prunella vulgaris (Self Heal) among the showier species.

Pomaderris (Hazel) is most abundant among the regenerates of clearings and such, invariably growing with Forest Wire-grass which is rampant. Shrubs such as the beautiful Olearia lirata (Snowy Daisy-bush), Coprosma hirtella (Rough Currant-bush), and the delicate climber Billardiera longiflora (Purple Apple-berry) make an appearance mostly by the roadsides where competition (for light) is least.

WHAT VALUE THE OTWAY RANGES?

Those familiar with the Cape Otway to Blanket Bay, Parker River area will immediately recognise the value of its recreational potential. Such a variety of scenery from rugged coastal to lush summer-cool rain forests to delight the city-tired eye. This is a considerable value, and applies to the whole Otway Ranges. The coast has long been popular as an unexcelled recreation zone, but more and more people are penetrating inland to wander in the bush in roles of picnicers, fishermen, photographers, or just curious idlers. How much will this demand magnify over the next

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

decade? It is your guess.

But does all this jumble of vegetation mean anything to a naturalist or his educated soul-mate the scientist-ecologist, botanist, mammologist, or what? We think the Otways very important in spite of our (the naturalists) often biased viewpoint, in ways that cannot be measured in cents and multiples of cents. There is an undeniable sentimental attachment to a place visited year after year which has continued to yield a wealth of knowledge to a personal fund.

Botanically the Otways, more particularly the area under discussion, is significant and in some respects unique as an isolated western extremity of a vegetation type much more extensive in eastern Victoria and Tasmania. And in the broader sense ecologically because of faunal-botanical considerations, not quite my province. I think here in terms of the wet sclerophyll forest.

Wet sclerophyll forest must have dominated a large area when Tasmania was joined to the mainland by the land bridge now long since subsided. The original forests are now fragmented, existing in elevated parts of eastern Victoria, Tasmania, and the Otway Ranges, itself not of insigificant size.The Otways are now an isolated reservoir of wet sclerophyll elements and the forest bears a close affinity with that of Tasmania. As a western extremity in Australia of this type of vegetation, the area naturally means the geographical extremity in the range of no less than 30 higher plants, excluding a much more vast (but no less important) host of mosses, liverworts, lichen and fungi. The area also contains the only known Australian occurrence of the frozen waterfall fungus, Hericium erinacium and the only Victorian occurrence of Correa lawrenciana (along the coast). Apart from this, some rare plants are known from the locality and some unusual associations of plants.

Scientifically the Otways offers an exciting field of study for ecologist, botanist, mammologist, mycologist and others. A post graduate ecological study has already been conducted on regeneration of Myrtle Beech at Maits Rest by a University of Melbourne botanist. With the greater interest (thanks be!) in the environment, scientific interest is bound to be directed to virgin areas such as these fruitful field laboratories.

VEGETATION OF THE PARKER RIVER, CAPE OTWAY REGION (Cont'd.)

Following is a list of some of the more noteable plants.

Hericium erinacium ("Frozen Waterfall Fungus") - the only known Australian record.
Cyathea cunninghamii (Slender Tree-fern) - the most westerly occurrence of a comparatively rare species.
C. marcescens (Skirted Tree-fern) - the only known endemic fern to Victoria and one of the largest species, known only from four isolated localities.
Sarcochilus australis (Butterfly Orchid) - a rare and beautiful species with its most westerly occurrence in the Otways.
Nothofagus cunninghamii (Myrtle Beech) - most westerly occurrence.
Pittosporium bicolor (Banyalla) - most westerly occurrence.
Correa backhousiana - only known occurrence outside Tasmania.
Phebalium squameum (Satinwood) - confined in Victoria to the Otway Ranges.
Eucalyptus regnans (Mountain Ash) - most westerly occurrence.
E. kitsoniana (Bog Gum) [illegible]
Acacia myrtifolia (Myrtle Wattle) - the distinctive robust form at Cape Otway is unique to this area.

Most of the other species with a western extent in range occurring in the Otways are ferns (see J.H. Willis, "Handbook to Plants in Victoria", Vol.I).

May the Otways, and particularly the part under discussion in this article, ever remain in a natural state as a testimony to this generation's good conservation judgment.

* * * * *

NEW YEAR TIGER CAT

The note about the Tiger Cat which arrived in a Tanybryn home on New Year's Day in the last issue of "Geelong Naturalist" (Vol.7 No.3, page 94) lacked one vital detail!

The year concerned was 1969.

The Editor apologises for this error.

* * * * *

FEATHERED NAVIGATORS

By Arthur E. Woodley

for Shiplover's Society of Victoria.

The Mutton Bird, as the Short-tailed Shearwater is usually known, is migratory, leaving its nesting areas in the Bass Strait region in late March or early April, flying first north easterly to places north of New Zealand, from there north west to the Phillippines, and following the coast of Asia past Japan to the Aleutian Islands in the Bering Sea.

Towards the end of the northern summer they begin their flight down the west coast of America; then they cross the Pacific near the Hawaiian Islands, and return to Bass Strait on the same day each year. It is known that some of these birds have repeated this flight thirty times.

This migratory pattern is unique. Times of arrival and departure are strictly adhered to and, in fact, in many cases are maintained to the very hour.

The parent birds begin their flight north about two weeks before their young, which seem to follow the same "flight path" by relying on instinct.

The Bass Strait region is the only nesting area for mutton birds. Burrows, in which they make the nests, are found in sandy soil near the edge of the sea. In very crowded rookeries these may be as many as nine to the square yard.

The shearwater female takes five years to mature; the male takes seven. One egg only is laid each season, and if anything unfortunate happens to that one there is no second egg that year. Some cases are known of birds more than thirty years old still breeding. The birds return to the same burrow every year, and after mating the egg is laid and the female sits on it for two weeks without stirring for food. The egg is the size of a duck egg, and, like the flesh of the bird, has a strong oily taste. During this period the male is at sea feeding, but at the end of the second week he returns to relievehis mate on the nest. Mutton birds are usually monogamous, but if one mate is killed another is selected.

Unlike many sea birds, whose excreta is deposited in the form of

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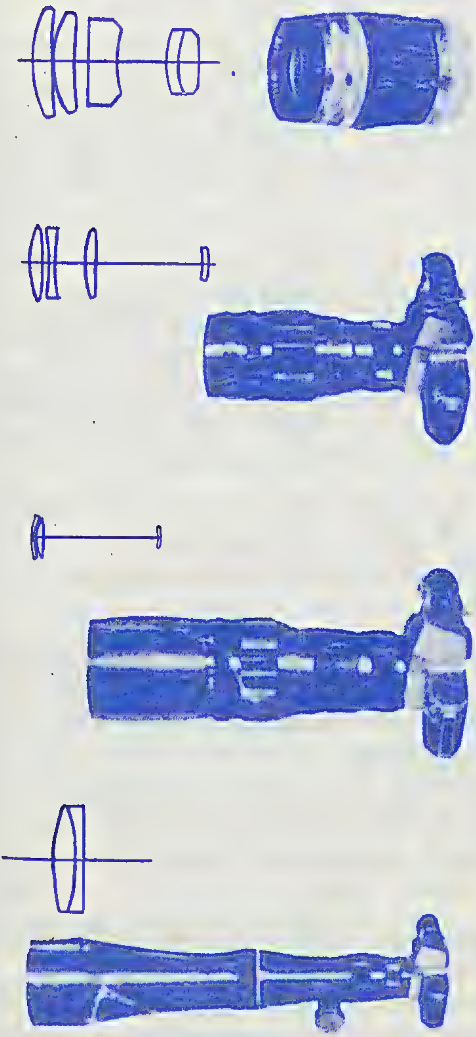

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FEATHERED NAVIGATORS (Cont'd.)

guano, the sea-going habits of the mutton birds keep their nesting area comparatively clean. Their food consists mostly of the small octopi and squid which abound in the waters of Bass Strait.

The build of the bird does not lend itself to easy travel on land; its short legs make for a clumsy rolling wing movement, and a fluttering gait. Without a "runway" at a reasonable height it is difficult for the birds to become airborne. If conditions at sea are too calm it is impossible for them to leave the water; they just "sit it out" and wait for a blow.

All flight movements round the rookeries are carried out at night; the great exodus occurring just before dawn, the return at dusk. The pre-dawn departures develop into a wild scramble as hundreds of birds jostle for position on the runway - and one runway can serve an area of 100 square yards of rookery - and there are many collisions and many abortive take-offs, with dozens of birds fighting for a second try, before all the birds have gone.

Mutton birds dig their burrows in sandy soil, usually in the face of a small ledge or beside a tussock of grass. Like rabbit burrows, these are slightly inclined to the earth's surface and go to a depth of 6 or 7 feet.

The mutton bird has been blamed for soil erosion of the foreshores, for the sandy soil must also support vegetation if the burrows are not to collapse over the nests, but in their natural state the danger of this seems to have been exaggerated. It is only when man imposes some other regime, and grazes, cultivates or burns the area, that the vegetation is destroyed and the mutton birds, returning to the same location, dig more burrows. Then trouble can start.

It was quite recently that the new theories were evolved concerning the reasons for the navigational habits of these birds. The "Western Port News", as a matter of interest, published a small paragraph, mentioning that mutton birds had been seen flying round and round the brilliant flame at the top of the 180 ft. flare stack of the B.P. Refinery at Crib Point until the first sign of dawn.

The Fisheries and Wildlife Department investigated the report, and subsequently came up with an interesting theory. Mr. Keith Dempster, a senior research officer of the department, wrote:

FEATHERED NAVIGATORS (Cont'd.)

"It is generally believed now by scientists that migratory birds are guided in their choice of travels by reference to the positions of the sun and the stars, and experiments have been carried out which strongly support this view.

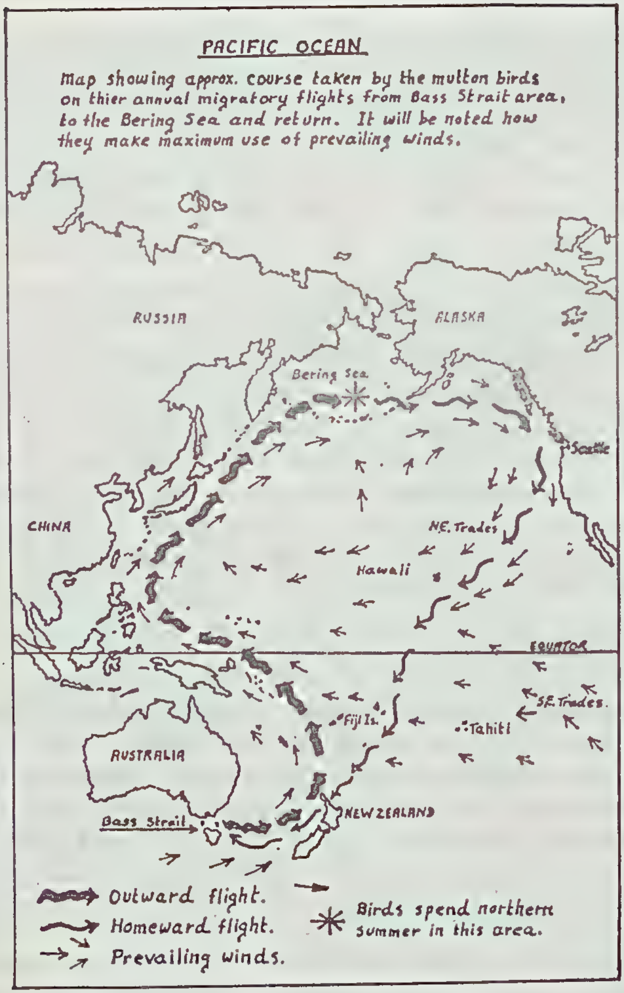
"In the case of the birds which fly by day it has been demonstrated that they are able to make allowances for changes in the relative position of the sun at different times of the day. Normally, however, over short periods of time the sun is so far distant that, in order to maintain a direct route, a bird would hold course so as to keep a constant angle between the light source and the line of flight.

"When an unusually bright light - such as the refinery flare - is introduced into the birds' flight path, the bird will try to fly a course which maintains the angular relationship to the new reference point which would have been necessary in the course of normal migration. But, in this case, a new reference point is so close that the only way in which a constant angle can be maintained between the flight path and the light is for the bird to constantly change its course - that is, to fly in a curved path. Unless the reference angle happens to be 90 degrees the curvature of the flight will actually result in a spiral path. Such a course eventually leads the birds to fly right into the light source, and this, in fact, does happen in the case of moths.

"Birds are a more highly developed group of the animal kingdom than insects, and they are able to avoid this danger, possibly because of something like conscious fear or perhaps because of a contrary involuntary action which causes them to avoid excessive heat . . . the birds may be condemned to fly round the flame until daybreak, when a stronger source of light appears and provides a new point of reference to free them from their endless journey.

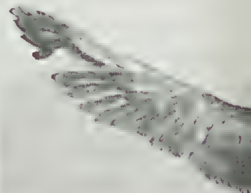
". . . Mutton birds normally arrive at Phillip Island . . . during the last week of October. Until this time a flare had not been in existence and this flight of mutton birds, being the first arrivals, apparently arrived after sunset and were, for the first time, confronted with this distracting light source from their flight path."

In the days of Victorian settlement before 1907, when the whole of the wildlife on Phillip Island was put under Government protection,



PACIFIC OCEAN

Map showing approx. course taken by the mutton birds on thier annual migratory flights from Bass Strait area, to the Bering Sea and return. It will be noted how they make maximum use of prevailing winds.



Cape Woolamai, eastern extremity of Phillip Island, Vic. "mutton birders" camps were set up on the beach in the cove at right of picture. - Photo by Cap't Pratt about 1940.

Showing the short even tail of the mutton bird or short tailed shearwater.

FEATHERED NAVIGATORS (Cont'd.)

"Mutton-birding", like Sealing, was a lucrative pastime. The late Mr. Woolley, who lived on the Island told me many stories of that time.

It was a hazardous business. A mutton bird has a beak as sharp as a kookaburra's, and does not hesitate to use it when its burrow is attacked. Venomous snakes too, frequented the burrows and there is an element of risk in exploring a burrow with hand outstretched.

The methods used to capture the birds or extricate them from their burrows were varied, but in many cases the hunter placed his hand, palm up, in the burrow. The bird would come and defensively peck at the tough-skinned palm, and with a swift movement the hunter would grab the bird's head. This needed both nerve and practice. Although the burrows were longer than a man's arm could reach this did not matter, as on hearing disturbance at its "front door" a bird would always come within reach to attack the intruder.

There was once a good market for mutton bird eggs, and for this the hunter had a long piece of wire looped at one end so that the egg could be scooped or rolled out of the nest.

The oil of the mutton bird, rendered down, is of high medicinal value. Mutton birds themselves, either smoked or fresh, used to be sold in Melbourne fish shops.

Although the mutton birds are protected under Victorian law, there is no evidence of any great increase in the bird population around the coastline. On some of the islands in Bass Strait which are not under the jurisdiction of Victoria a limited amount of hunting goes on, but this is rigidly controlled and even under these conditions there seems to be very little variation in the population. It was a far-sighted moved indeed to put the birds under protection. Future generations will be able to learn even more, and perhaps profit by the knowledge of these compulsive travellers, the feathered navigators of the Pacific.

Footnote:
First published in The Annual "Dog Watch" No.26. 1969.
Reproduced with the kind permission of the Shiplover's Society of Victoria.
The author of this article spent his boyhood on Phillip Island. He made the observation of the birds flying round the Refinery flare when he was employed at the Refinery as an operator. It was published in the Western Port News of 1st. November 1967, and subsequently the solution by the Fisheries and Wildlife Department on 3rd January 1968.

IS THERE AN OTWAYS TIGER?

By Trevor Pescott

I must confess to a change in belief in relation to the reported sightings of a large, striped tiger-cat in the Otways, for although I refuse to adopt the name of "Tasmanian Tiger" as most reports do, I am inclined to accept now that a Thylacine-type animal may inhabit the Otways.

But one must be cautious despite the variety of reports available (or perhaps because of them!) for there is no positive evidence of the existance of such an animal on the Australian mainland, much less in the Otways.

Ellis Troughton, in his book "Furred Animals of Australia", (sixth edition 1957, pp.48-50), wrote in a section titled "Striped Marsupial-cat of North Queensland" that for over 80 years there have been reports in that area of "a striped cat, loosely described as a cat just growing into a tiger".

He added, "there seems some possibility that a large striped marsupial-cat haunts the tangled forests of North Queensland", although "the failure of observers to obtain any parts of the hide, hair, skull or teeth, casts much doubt over the reports".

Such remarks apply absolutely to the Otways animal.

The latest I have is in a newspaper report in early November (just as I was settling down to write these notes, a copy of the report arrived in my mail); it states that "The caretaker of the Cape Otway lighthouse, Mr. Les Upton, believes he saw a Tasmanian Tiger on the road to the lighthouse on Sunday morning" (presumably Nov. 8th).

He was returning to the lighthouse about 10.30a.m. when he saw an animal "flash across the road into thick scrub"; he described it as about two feet long, with a tail about two-thirds the length of its body, a "squarish-looking" head, very short legs, reddish-brown with dark stripes along the spine near the tail".

Unfortunately, Mr. Upton "had seen photographs of Tasmanian Tigers at the Launceston Museum".

Too often, the reported sightings liken the animal to the Tasmanian Tiger, and one wonders if the observers seeing perhaps a wallaby or

IS THERE AN OTWAYS TIGER? (Cont'd.)

a fox in confusing light, may not conclude without sufficient thought, that a "Tiger" is what was seen - not that I doubt for any moment the honesty of the report nor the fact that a "Tasmanian Tiger-like animal" may inhabit the Otways!

Some reports, upon deep investigation fall rather short of convincing, and one such was of a sighting near Benwerrin by three people who saw a spotted Tiger Cat, and a striped Cat; however, the next week they saw in the same area a Tortoise-shell cat, obviously a feral pet, and so the other reports become doubtful.

I have seen a striped cat near home too; late last year, in excellent light, I saw a striped tabby, obviously someone's pet - but given bad light, a much briefer glimpse, an inexperienced observer and a good imagination, and bingo - a Tasmanian Tiger!

I had hoped my writing this may have helped me to sort out my own convictions, but, alas, I am even more confused than ever - and I guess you are too!

But I do accept the possibility, even probability, of an Otways Striped Marsupial-cat, and urge that every possible sighting and report be investigated, and documented by printing in this Journal or elsewhere, or even if only as a report to the G.F.N.C.

* * * * * *

EMUS RETURNED

By Trevor Pescott

Matthew Flinders during that historic walk from the shores of the Bay to the You Yangs peak in 1802 recorded that Emus were seen by his hiking party. Soon after farmers began clearing the land of trees and native vegetation and fences were erected, the Emu became extinct locally, pushed back into more remote areas. In 1970, six young Emus were brought to the You Yangs Forest Park, and by careful tending, the Ranger Mr. John Dixon reared all six in a spacious enclosure; now they have been released and have the freedom of the area.

We hope that this will be a successful and desirable reintroduction of a long-lost species.

THREE AVIAN ODDITIES

By Rolf Baldwin

Although it is only a couple of hours' drive from Geelong, Maryborough seems to be in a different world. The low, rolling ranges of the goldfields country, timbered with straight, pole-like box and rion-bark are like nothing at all that we know in the Geelong district, even in the Brisbane Ranges. However, three items of bird behaviour that were noted near Maryborough are here offered, as the three species concerned are familiar in our country as well.

The first concerns the Common Bronzewing Pigeon (Phaps chalcoptera). Mr. Tony Burger, of Havelock, a retired railwayman, has for some time been working on a new line of fence which runs past a row of sugar gums, interspersed with a few young Monterey pines. After a few days' work he noticed a "bronzie's" nest on a slender forked branch of one of these pines, at about 12 feet from the ground. He watched it unobtrusively, being gratified that this normally very shy bird did not desert the nest on sensing that it had been observed. Moreover, the birds allowed him to continue with his watching until he noticed the next unusual feature, that there were two eggs instead of the far more usual one.* By this time the birds had evidently accepted him as harmless, because they remained faithful to their charge despite the daily comings and goings of this human with his discreetly prying eyes. They even tolerated strangers for, when Tony showed me the nest, the female bird sat fast, brooding over two young ones which were at that time so advanced that their heads, peering curiously over the edge of the nest, were almost replicas of their mother's. That was in late December 1970 and I have had no word of what has happened since.

Another strange facet of bird behaviour was noticed within a chain or two of the home of the twin pigeons. For some years a pair of Galahs (Kakatoe roseicapilla) have used as a nesting site a hollow in an old sugar gum about two feet in diameter. The nest is about twenty-five feet above the ground and thus far all is normal. What attracts one's attention to the tree is the lack of bark on the trunk. During the years of their occupancy the Galahs have been busily ringbarking their tree until now the scar caused by their work, although somewhat irregular in its boundaries, extends about three quarters of the way around the stem in a band about six feet wide. The considerable extent of the current year's work can

(* a local feature - around Geelong, 2 eggs is a normal clutch)

THREE AVIAN ODDITIES (Cont'd.)

be distinguished in the lighter colour of the wood from which the bark has been stripped. In a year or two, if the present rate is maintained, the full ring of bark should be removed and the tree dead from six feet above the ground. The local theory, given without comment for what it is worth, is that the bare wood and, still more, a dead trunk are an effective obstacle to the climbing activities of the goannas which are possibly the worst enemies of nesting Galahs.

The third strange occurrence is also connected with the parrot world. In his bush wanderings Mr. Eric du Bourg, a noted Maryborough ornithologist and bird photographer, found the nest of an Eastern Rosella (Platycerus eximius) and kept it under observation. There was nothing unusual about that; what was unusual was that he soon found that the nest was being tended, not by two Eastern Rosellas, but by a female of that species and a male Crimson Rosella (Platycerus elegans). There were two offspring of this irregular union, almost fully grown just before Christmas, 1970. The larger, probably male, favoured his father, particularly in the obvious cheek patches, whilst the other, a trifle smaller, ran much more to the markings of an Eastern Rosella. Mr. du Bourg's opinion of these goings-on among the parrots is that the union would always be of the type noted in this case, for the male Crimson Rosella has that slight edge in size and power over the Eastern Rosella which would enable him to seize a bride, whilst a male Eastern Rosella would have to gaze hopelessly at the blushing Crimson Rosella that had taken his fancy.

* * * * *

GOATS AT YOU YANGS

By Trevor Pescott

About the middle of last year, two Goats were liberated on the slopes above the Club's tree-planting area of the Top or North Saddle at the You Yangs. The animals were not sighted for some time later in the year, but on January 30th, I checked the area and found three goats, one being a half grown animal obviously the offspring of the other two.

TAKING A CLOSER LOOK AT A HUNTSMAN

By David King

Spiders, although one of the most prevalent of creatures,have not had anywhere near as much attention paid to them as most other animals. This is possibly because being so common they do not generate a greater interest and, perhaps too, their general appearance and habits tend to inhibit most people's interest to the extent they are considered repulsive. However, once the step is taken to delve further into the form and structure of the spider a whole new world is opened up. The variation in colour and form is vast once these creatures are closely observed with a magnifier, even one of low power.

Of the more widely known spiders and perhaps observed as often as any, at least in Victoria, is the large huntsman, very often referred to, quite erroneously, as a "tarantula". These spiders belong to the family of Sparassidae, and the most common genus seen is the Isopoda. They are characterized mainly by their relatively large size and hairy appearance. The legs, of which there are eight as in all true spiders, are of latrigrade configuration. That is, the surface normally considered to be the upper surface of the leg is, in fact, facing towards the rear giving the spider the appearance of having been flattened or squashed flat with the surface upon which it is resting (Fig.1). Having legs like this enables the spider to move sideways as well as it can forwards, and having a flattened body too, it is able to crawl into crevices and under confined spaces, such as the loose bark of trees. Lifting the bark of dead trees can often disclose one of these spiders.

Although there is no doubt that these spiders can inflict a bite on a human, they much prefer to retreat, or if escape is impossible, to just stand their ground in a threatening attitude without any attempt to attack. The average sized Isopoda has large fangs which can be opened out to easily embrace a pencil. I demonstrated this once by provoking a specimen with a pencil, and although it took a great deal of provocation before it gripped the pencil with its fangs, this grip was sufficient to hold its own weight whilst being shaken. An interesting point was that no venom was evident on the pencil afterwards. Whether this spider is capable of controlling the flow of venom is a matter for further study.

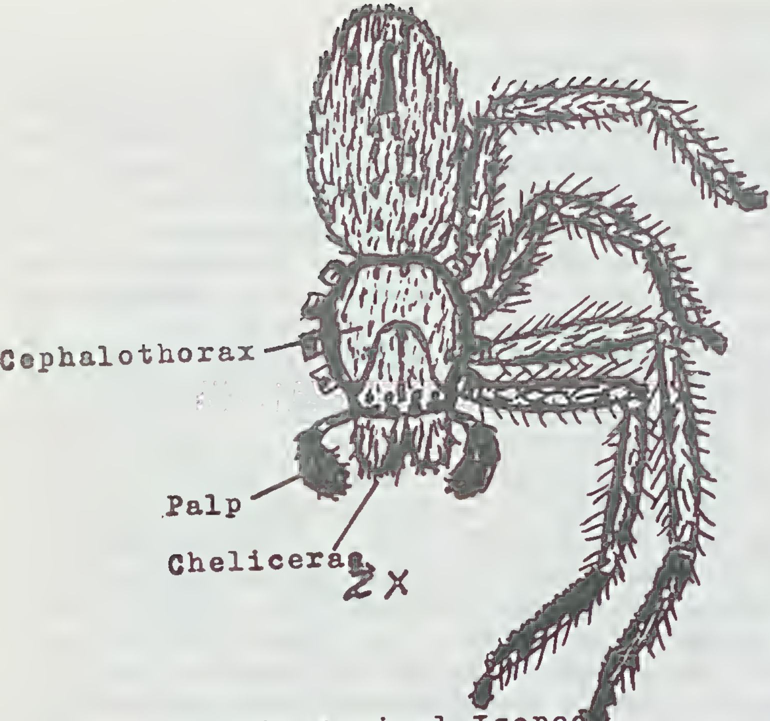


Fig.1. Typical Isopoda

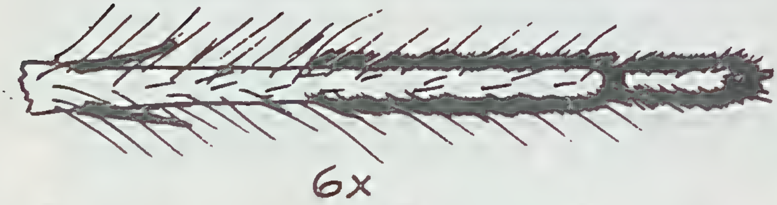


Fig.2. Tarsus and Metatarsus

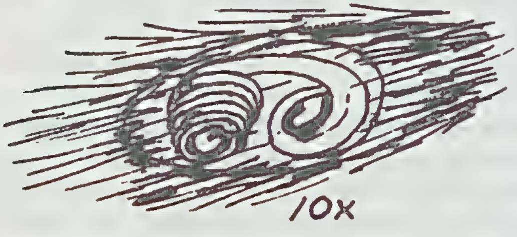


Fig.3. Palp of a male Isopoda.

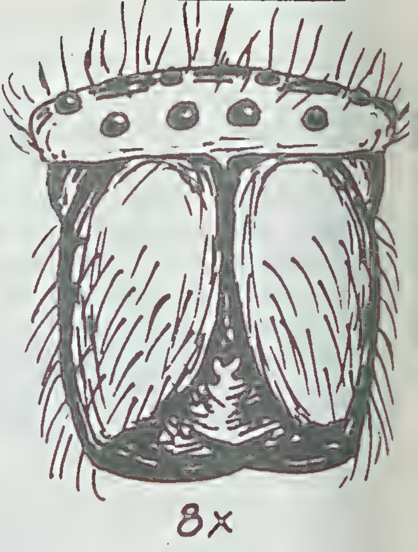


Fig.4. Frontal view of the face and chelicerae

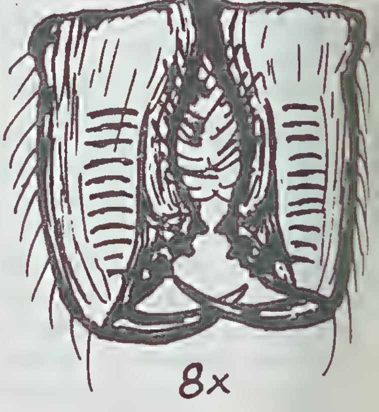


Fig.5. Posterior v of the chelicerae.

TAKING A CLOSER LOOK AT A HUNTSMAN (Cont'd.)

These spiders are true hunters because they do not spin a web or a snare to capture their prey. They achieve this by chasing and overwhelming their victim or by suddenly leaping at the victim if it approaches close to the spider. They are, however, equipped with spinnerets that can produce silk and is used for two purposes. One purpose is to produce the egg sac in which it lays its eggs and suitably anchoring same in position under bark. The other purpose is to produce a "life line" enabling it to return to its original position. This is done by the spider first making an anchor pad on the surface upon which it is resting, and then trailing a thread of silk behind it so that it can easily return to the starting point by hauling itself back with the silk thread. This process can be easily observed by placing one of these spiders in a glass jar. It will immediately attempt to produce an anchor pad of silk, followed by several others all interconnected with a silk thread thus forming a network of threads which it can grip with its claws, thereby producing a purchase for itself on the smooth surface of the glass. When the spider is producing the anchor pad the spinnerets can be observed moving rapidly over the surface of the glass, very much like a ball point pen scribbling a small dot.

To assist the Isopoda to move about relatively smooth surfaces the ultimate and penultimate sections of its legs, called the tartsus and metatarsus respectively, have a thick covering of short dark hairs on the under side, similar in appearance to a clothes brush (Fig.2). In addition to the hairs of the metatarsus there are two spines which it is believed play some part in the spider's sound sensory system. Each of the legs terminate in a pair of claws which are sometimes difficult to see because of the fairly dense hair surrounding them.

Attached to the forward part of the spider's head (cephalathorax) are two appendages called palps (Fig.1). The palp is composed of several sections like the legs of a spider and can be manipulated by the spider in the same manner as the legs. In both male and female it is used as a sensory organ, but in the mature male the last section is enlarged and contains the reproductive organs. The palp of a male Isopoda found in the Otways is shown in Feg. 3. The coiled section is the copulatory organ and the base section to which this coil is connected contains the sperm sac. The coil surrounds another part of the organ which is also connected to the

TAKING A CLOSER LOOK AT A HUNTSMAN (Cont'd.)

base section and probably acts as a pump during the mating process. When measured the coil was found to have a length of 2 centimetres.

As previously stated, the palp is also used as a sensory organ. When the spider is closely observed it may be seen to continually touch the ground surface immediately in front of the fangs. An interesting experiment is to feed a live fly or moth to the spider and observe the action of the spider capturing, killing and feeding upon the prey. The spider will grab at the prey with its forward pair of legs and manoeuvre into a position over the prey such that it can insert the fangs and subdue the victim. All during this procedure the palps will be seen to continually tap the prey for the apparent purpose of testing its relative position, and the spider moving the prey or itself into the best position for feeding on the prey. It is quite probable that with the arrangement of the spider's eight eyes, it cannot observe the prey, or anything else, in the region of its fangs and, therefore, must rely on the sensory properties of the palp.

The eye arrangement as shown in Feg. 4 is typical of all the Isopoda. Each eye is fixed and cannot be rotated, but with eight eyes at its disposal the spider must have a wide field of view. One of the anterior median eye lens was removed from a dead Isopoda and placed under a microscope. By adjusting the focus to coincide with the focal point of the eye lens it was possible to see through this lens, objects both close to and at a distance from the lens. By measuring the degree of microscope adjustment between the focal point of the eye lens and the point when the lens itself was in focus, it was found that the eye had a focal length of approximately 1.0 millimetre. It is impossible to say what sort of vision the spider posesses in spite of the eye lens having fairly good optical qualities as it would depend a great deal upon the number and how well developed are the receptors in each retina.

The chelicerae of a typical Isopoda as shown in the anterior view Fig. 4, and posterior view, Fig. 5, consist of two parts, the upper part known as the base section is hinged to the head part such that it can be moved laterally. The lower part is the actual fang which can also be moved laterally relative to the chelicerae. The venom is ducted down from sacs in the cephalathorax through the hollow fang to a minute hole in the end of the fang.

TAKING A CLOSER LOOK AT A HUNTSMAN (Cont'd.)

Two interesting points about the chelicerae, as found in this species, are the horn-like projections and the series of ridges on the posterior surfaces (Fig. 5). It is probable that these projections are an aid to securely gripping the spider's prey whilst it feeds upon it. With the spider's mouth situated immediately behind the chelicerae, coupled with the fact that spiders do not chew their food but suck out the juices from their victim and eject digestive juices to help dissolve more solid matter, it is probable that the ridges on the posterior side of the chelicerae are used to mix the juices and solids in much the same manner the scrubbing board was used by housewives when doing the washing.

Acknowledgement: I am indebted to Mr. M.R. Gray, of the Australian Museum, for information concerning the function of the male palp.

Further Reading: Child, John, "Australian Spiders", Landsdowne Press
Clyne, Densey, "A Guide to Australian Spiders", Thomas Nelson.

* * * * * *

HARGREAVES PADDOCK

By Trevor Pescott

Hargreaves Paddock, part of the once extensive Fyans Swamp, near Princes Bridge is the subject of a project being planned by the Newtown City Council; work will soon be undertaken to enlarge, deepen in part, create islands and extensively plant the area with trees. During the late part of summer, as the swamp has begun to dry out, a wide variety of birds have arrived to feed on the fish, frogs and other aquatic animal life exposed; not the least of these birds have been Pelicans, and on many occasions one or two birds have been present. In addition White ibis, Night herons, White-faced herons, Straw-necked ibis and Yellow-billed spoonbills have been seen there along with Swamphens, Moorhens and Gulls.

All this is an excellent sign that the proposed lake and park will be highly successful.

AT RANDOM

PLUMAGE OF MUDLARK DYED? - by Jack Wheeler.

Late last year, news came from Colac that a strangely plumed Mudlark was seen flying around the city, and at first it was thought to be one of natures freaks. However the bird disappeared and it was later learnt that it had been captured and was being kept in a cage.

The Fisheries and Wildlife were notified and went to Colac to investigate and finally seized the bird, it being a protected species.

The person who had the bird in a cage, stated that he found it on the lawn in a distressed condition and had caged it to nurse it back to health. Another theory was that the bird with such unusual coloured plumage was a real rarity and could be sold to the highest bidder.

However, I have had the opportunity to examine the bird closely and I am convinced that the bird was no freak, but the white feathers had been dyed with a bright purple-cerise coloured dye and whoever had done the job had taken particular care and did it very thoroughly.

The bird was a male, and when I observed it, it was feeding well and appeared quite o.k., but I was surprised that on the following day it was found dead. Had, during preening, some of the dye penetrated its stomach and caused death? This dyeing of the birds feathers was none other than an act of barbarity, and how the person who did the job can receive any satisfaction from such an act is beyond me.

Lack of pigment can on occasions cause albinism and the creature or sometimes a plant, becomes pure white; akin to this, nature can on very rare occasions, produce what we call lutinism, where instead of becoming white, a state of yellowness exists. To inherit lutino,

AT RANDOM (Cont'd.)

it must be from both mother and father even though they themselves may be normal in every way. I have only ever experienced lutinism once and that was at Clunes in 1963, when I observed a pure yellow Red-backed Parrot, and it was on the ground feeding in a flock of at least fifty normally plumed parrots of the same species.

ORCHIDS OF THE CHALK OUTCROPS OF ENGLAND - by Mrs. M. Boardman.

Sixty million years ago, the sea covered the present chalk areas of the south eastern part of England. At the bottom of the sea, as in the Atlantic Ocean today, there was an accumulation of slime, composed of countless armoured carcasses of microscopic animals (foraminifera).

In the course of time, this slime was raised from the ocean bed, and became the Downs of Southern England. The chalk of the Downs was lime dissolved in the Cretaceous Sea, and today consists mainly of calcium salt. It is soft, extremely porous, and the soil derived from it is shallow, quickly drying, with high calcium carbonate content.

Some very rare flowers are found in this chalk country, including some unusual orchids, such as the pyramidal (having a pyramid of mauve flowers clustered on the top of a long stem), the lizard orchid (with a fantastic 2" long twisted lip), the man orchid (with human shaped arms and legs). The latter is found in large numbers in Kent during May and June. They are greenish brown in colour.

There are many others, including the bee orchid, with beautiful pink sepals and rich brown lip, the rare wasp which has a narrower lip than the bee, the fairly rare fly, with green sepals and narrow lip, and two spider orchids.

One spider has green sepals and flowers in April, the other is pink, is found in Kent, where it flowers in May, and is one of the rarest of British orchids.

The loveliest is the burnt-tipped or dwarf orchid. This has reddish-brown sepals forming a dark helmet over each honey-scented flower. It is found on the limestone hills from Northumberland and Cumberland

AT RANDOM (Cont'd.)

down to the south, and when the topmost flowers are in bud, the whole spike looks as if it had been scorched at the tip.

Incidentally, there are over fifty species of orchids in Britain.

(All of this information is from "Wild flowers of the Chalk" by John Gilmore. The last sentence is from "Wild flowers" by Raray.)

THE CONIFERS OF BRITAIN - by Mrs. M. Boardman.

There are only three native conifers in Britain -the Scots Pine, the Common Juniper and the Yew.

The Common Yew is found mainly on the chalk areas, some being reputed to be one thousand years old; its hard springy wood was formerly used for making bows. It is densely branched, thick trunked, grows to 60 feet, and has narrow soft dark green leaves about 1" long. In autumn the seeds are hard and dark red, sometimes causing cattle poisoning.

The Common Juniper grows on chalk and limestone hills, is slow growing and rarely exceeds 30 feet in height. It has narrow, spreading, 1/2 inch long pointed leaves. The globular bluish green cones are fleshy when ripe, and contain 1 to 3 seeds. Oil of juniper is extracted from the unripe cones, which are also used for flavouring gin. There are many varieties of juniper.

The Scots Pine is found also in Europe and Northern Asia. The young trees are pyramidal with the branches circling around the stem; the old trees are almost flat at the top. The narrow, pointed, bluish green leaves are from 2 to 3 inches long, and are in pairs at the tips of short dwarf shoots. The pendulous woody cones are from 2 to 3 inches long, and open in June to release the winged seeds. There are well over 100 varieties of these pines.

The Scots Pine is of economic importance as a source of yellow deal, which is light and durable and often used in house building, furnitur construction and for telegraph poles and railway sleepers.

(Information from "A guide to the trees of Great Britain" published by Paul Hamlyn of London in 1966.)

JUNIOR PAGES

POTOROO:

Australia is well known for its larger Kangaroos, in particular the big Red of the inland; the Kangaroo along with the Emu, support our Coat-of-Arms, and Kangaroos were amongst the first Australian animals to be noticed by Captain Cook and other explorers 200 years ago.

But few people know of the little cousin of the Kangaroo, an animal not as large as a rabbit but which is a type of Kangaroo; we use the name Potoroo now, although it was once known as the Rat-kangaroo.

Like the big Kangaroos, the Potoroo is a marsupial, that is the mother carries her young in a pouch until it is old enough to look after itself.

We find Potoroos in several bushland areas not far from Geelong; at Airey's Inlet, near Cobden, at Forrest and in other parts of the Otways, they have been seen.

Potoroos feed on roots, grasses and other plant growth, and during the day sleep in a nest of grass built under a dense bush or grass-tree; in the evening or at night, they come out to feed.

It is most unlikely that you will see them, for they are very shy and being quick and quiet, are hard to find.

JUNIOR PAGES (Cont'd.)

KANGAROO:

Whilst a Potoroo isquite small, the Grey Kangaroo is one of our largest mammals; and far from being quiet, it is quite easy to hear a Kangaroo when it is jumping away through the bush.

Many of us have been down to Anglesea where Grey Kangaroos come out to feed on the fresh green grass at the Golf Course.

Here, we can get quite close to them, for they have learnt that human beings are not going to harm them.

Have you noticed how a Kangaroo walks using its front legs with its tail for support?

This is when it is feeding, and should you disturb it, the Kangaroo hops away on its back legs, and then uses the large, heavy tail to help it keep its balance.

Kangaroos, Wallabies, Pademelons and Potoroos are all known as Macropods - that is a word which means "big feet"; I think that is quite a good name, don't you?

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Black-Fronted Dotterel

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COVER PHOTOGRAPH:

Black-fronted dotterel

by Trevor Pescott

GEELONG NATURALIST

EDITORIAL

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It is hoped that later this year, new Fauna Protection laws will be presented to State Government, replacing the archaic Game Laws under which the Fisheries and Wildlife Department are obliged to operate at present.

Conservationists are optimistic that the legislation currently being drafted into the appropriate Parliamentary Act will be of the same high standard of other recent Acts on the Environment and Pollution prevention; and if this is so, Victoria will become the leading State in fauna conservation as it is claimed to be in other aspects of environment protection.

Some basic improvements on current Game Laws should incorporate a list of fauna not protected rather than a protected list, penalties for offences against fauna brought into line with current values, a new deal for native rodents, and a wider cover of protection to all species now protected in a rather negative way.

The fate of reptiles must also be given some deep consideration, for the fact that there are virtually no laws at all covering this branch of fauna has caused conservationists grave concern in recent years.

Trading, open sale, wholesale collecting, mishandling and a great amount of cruelty which we would never tolerate in other animal forms is commonplace in the commercialisation of reptiles; a complete clean-up in this quarter of fauna protection is long over due.

TREVOR PESCOTT
Hon. Editor.

THE ECOLOGY OF CONSERVATION

Notes on a lecture delivered to the Geelong group S.G.A.P.
By Dr. A. Weideman

Plant ecologists are closely involved in all aspects of the conservation problem. Ecology and conservation go hand in hand: each involves principles of the other. Most in this organization would recognise the need for conservation, so what I would like to talk about are several aspects of conservation which are closely related to plant ecology and botany generally. It has been pointed out before, by many others, that conservation does not necessarily mean preservation in its strictest sense, but rather a wise use of an organism or resource so that it will last or survive indifinitely. Perhaps the word maintenance is more appropriate than preservation in most cases. I would like to look at three separate types or areas of vegetation and consider their ecology and conservation value from three different, but closely related, viewpoints: recreation, preservation and research.

What is the value of an area for recreation? People go to admire, appreciate or study plants, animals, rocks, landscapes, natural processes. They may go just to be in an outdoor environment or to get away from the city; or they may go to try to get away from the mass of people, to try to be alone for a short period. Some areas are well suited for this, others, perhaps of great ecological importance, may not be. To retain recreational values, areas must be maintained, perhaps even preserved. Sherbrooke Forest, as cut-over scrub land or even with selective cutting, would lose much or all of its present attraction, as would Wilson's Promontory given over to grazing.

Is strict preservation ever necessary? Sometimes any use or harvest of an organism, or a change of the landscape, would destroy its existance. This could be brought about by overuse, by destruction of habitat, or simply because of uniqueness or scarcity. The rhinoceros in southeast Asia is almost gone because of hunting and loss of habitat; the Acacia peuce of central Australia exists only in very small numbers; coastal sand dunes are unique natural features all too easily and quickly obliterated by man's activities.

How is scientific research benefited by conservation? There is too much yet that man does not know about his own world. All too

THE ECOLOGY OF CONSERVATION (Cont'd.)

often, even now, areas are changed by the influence of man before any knowledge at all has been gained about their animals and plants. There is no record of original appearance and composition. There is much yet to be learned about the genetic relationships among plant species: the whole science of taxonomy is a restless, ever-changing one, as new evidence is uncovered and techniques developed. How many species are there yet to be discovered? Plants grow in certain places because of their adaption to certain environments. Much of practical value to man can be gained from a knowledge of these adaptions. Also plants can serve as a source of new genetic material for breeding better food crop plants: insect and disease resistance, drouth resistance, adaption to certain soils and others must be sought in nature.

Each of these aspects or viewpoints can be illustrated by referring to a particular type of vegetation: North American coastal sand dunes for recreation; southeast Asian lowland tropical rain forest for preservation and the Australian Simpson Desert for research.

NORTH AMERICAN COASTAL SAND DUNES

Because of sea and air current patterns, a considerable area of the American west coast has sand dunes. In some places they are quite extensive and all phases of dune activity are present, from moving sand dunes and destruction of vegetation to stabilization and fully developed vegetation. Along the coast of the state of Oregon are the most extensive and spectacular coastal dunes, with some moving dunes reaching a height of 350 feet. Many small lakes have been formed by the damming of small coastal streams by the sand.

The area has great attraction for recreational purposes and most of the dune lands have been set aside as state parks and national forest lands. Much of the area is used simply as a playground, including ever increasing, and lamentable, numbers of motorized dune buggies, an unhappy product of an affluent society nurtured on wheels. However, there is much in the way of scenic beauty: landscape, plants and animals, and people do come for the appreciation of these. Others simply come to get away from it all - outdoors, to be sure, but certainly not in solitude, which I am sure all who have camped here in Victoria can understand.

But to the observant, much can be learned about the working of nature. The principles of ecological succession are nowhere else

THE ECOLOGY OF CONSERVATION (Cont'd)

so readily observed and studied. Although destruction due to moving sand is rapid, the temperate climate with sufficient rainfall makes the development of new vegetation rapid. This can be observed in two distinct habitats: the unstable surfaces of the moving dunes, and the stable wet surfaces left behind the moving dunes as the wind sweeps the sand down close to the water table. On these latter, regrowth of vegetation is rapid. "Pioneer" species quickly cover the ground, providing shelter for the shrubs which quickly develop and which in turn provide cover for the tree species. Within a hundred years, a well-developed spruce forest can be found on these areas. On the areas of actively blowing sand, species which are adapted to, and can survive, considerable burying by sand, are found. These, too, cover the ground, stopping sand movement and provide shelter for the succeeding shrub and tree stages. If free from disturbance long enough, the pine forest is succeeded by a fir and hemlock forest, but usually a new cycle of destruction by sand and succession occurs before such a forest can be established.

Although the recreational aspect is stressed, the research value of these areas is readily apparent; the adaption of plants to unique environmental conditions, and the study and demonstration of ecological principles. Preservation is also implied: as a continuing recreational resource for the people and as a vast outdoor laboratory for students and scientists. There are dangers: the pressure of recreational use can mar and destroy. Undergrowth is destroyed for campsites, dune buggies destroy vegetation and cut the landscape with their tracks. Demands for artificial stabilization disturb natural cycles. The demand is great for seaside resort development and most dune areas in private hands have been bulldozed level and planted to houses in unsightly conglomerations and stabilized with bitumen.

SOUTHEAST ASIAN LOWLAND TROPICAL RAIN FOREST

Such is the covering and amount of vegetation in the humid, tropical areas of the world that one could not conceive of areas needing the protection of total preservation, yet for one segment of this lush vegetation this is rapidly becoming the case. In the low-lying areas of the Malay Peninsula, Borneo and Sumatra are the dipterocarp lowland rain forests. With a year-round hot, humid climate, a community of plants has developed that shows

THE ECOLOGY OF CONSERVATION (Cont'd.)

fantastic diversity in its species composition and complexity in its ecological relationships.

Contrary to the popular image, the rain forest, or jungle, is generally not a place of immense trees and unpenetrable vegetation. Rather there are trees in all stages of development and of all sizes when mature. The average diametre of trees on undisturbed forest would be about one foot. In an acre forest, only one or two trees would reach two to three feet in diametre. The number of different species on an acre of forest is commonly over 100 and frequently exceeds 200, this only of trees. In these forests the most common trees are those of the family Dipterocarpaceae, many of which are valuable timber trees.

There are many unusual features in these tropical forests. The base of the trunks of many species of trees have buttresses, each of a characteristic shape and size, such as the plank and divided buttress. Stilt roots are also common. Fruiting habits are strange by temperate standards. Frequently the fruits grow right out of the main trunk or large branches, such as in the fig or breadfruit. The Parkia is a large leguminous tree with flower heads, each of which eventually develops four to six foot-long pods filled with evil smelling and tasting bean that is a staple in the diet of the local people. The hard, spiny fruits of the durian grow high off the ground, and are much desired by the people of the country.

The undergrowth of the rain forest is not thick and impenetrable, nor is it crawling with snakes and other dangerous creatures. It is, in fact, a dark, brooding, silent place with only the calls of birds and monkeys high in the tree tops to break the silence. Probably the most dangerous things would be the spiny clumps of rattan whose sharp spines can quickly tear the clothing and skin of a careless walker. Better to fall and roll down a steep hill than reach out and grab one of these for support! There are giant leafed Palms, the interesting Pandanus (screw-pine) and many species of ginger. Bright colors on the forest floor are not easy to find, though there are many species of short shrubs with small white and blue flowers. There are many orchids which flower profusely, but many of these are epiphytic, displaying their beauty far from the forest floor.

Knowledge of the rain forest is very incomplete: knowledge of

THE ECOLOGY OF CONSERVATION (Cont'd.)

species, means of identification, distributions of species, relationships of species. Much work now is basic: how fast do plants grow, how long do they live, where are they found and what are the ecological relationships. In a few cases, platforms have been built in the tops of tall dipterocarps to aid the study of tree flowering and of tree top animal life. Little is known of even the flowering of most forest trees. Dipterocarps average four to seven years between flowering periods. Problems of this nature are clearly not short term studies.

Travel in these forests is slow, and because of the lack of winds to alleviate the heat and humidity, mostly uncomfortable. Only the dedicated find their recreation in the rain forest! And to keep everything in perspective, there is that ubiquitous tormentor of the humid, warm forests: the leech, not dangerous, but not welcome, a fascinating animal in its persistant and unerring quest for food.

The dangers to the rain forest are two-fold: the loggers who want every bit of useable timber and who pay money into the state's treasury; and the land developers, who want this premium land for the planting of economical cash crops. The land is very suitable for the oil palm, increasingly popular as the price of rubber falls on the world market. The land cleared for oil palm and rubber increases every year. In most cases, the governments concerned give precedence to these needs over the need for maintaining some original lowland rain forest in an undisturbed state. A few areas have been set as reserves, but the laws creating these are not strong. The areas are small and the demand for their exploitation is increasing. It is not impossible that in the near future there will no longer exist any examples of original, undisturbed lowland rain forest.

AUSTRALIAN SIMPSON DESERT

Located in the southeast of the Northern Territory is the 50,000 square mile Simpson Desert. A forbidding region shunned even by the aborigine, its interior was not seen until a flight over it in 1929. It was not crossed on land until Madigan went across with camels in 1939. The western border is formed by the Finke River, the south by the Lake Eyre basin, the north by the MacDonnell Ranges and the east by the tributaries of the Rivers Diamantina and Cooper.

THE ECOLOGY OF CONSERVATION (Cont'd.)

The main feature of the desert is a series of parallel sand ridges running south to north, a quarter of a mile apart and averaging some 50 feet high. Although many are continuous for a hundred miles or more, they frequently join together in a "Y", the stem always facing north. The desert has been largely undisturbed by human influence. What there is occurs only around the edges where there are several large cattle stations.

In the past few years, studies have begun on the climate of the desert in the hope of learning why the dunes have formed in such a remarkable manner. Automatic recorders, powered by solar batteries, record wind speed, direction and rainfall. A systematic study of the vegetation was begun in 1968. A surveyed and permanently marked transect was located, running from the crest of one dune to the crest of the next. The plant species present - over 100- showed definite distribution patterns from the active sand crests down to the stabilized swales or lowest points between two dunes. The vegetative cover is heaviest in the swales and is made up largely of ephemerals or plants that grow from seed after sufficient rain falls. Most of the shrub and tree vegetation is also in the swale. Witchetty bush (Acacia kempeana) is characterized by a wide circle of bare ground around the base of each plant. Mulga (Acacia aneura) reaches the greatest height of the tree species, and are widely spaced. Individuals of Eucalyptus terminalis are very widely spaced and most of them appear to be regrowths from larger trees killed by drouth or fire some time ago. A characteristic feature of these trees is the thick, lush growth of ephemerals around the base of the trees, in complete contrast to witchetty bush. The ephemerals of the swale are mostly of the families Compositae and Cruciferae.

An interesting feature of the dunes are the quite short, steep eastern slopes and long, gentle western slopes. On the steep slopes, the sand is loose, and with sufficient rain, a fantastic array of colorful ephemerals blankets the slope. On the long western clopes, the sand has more clay mixed with it and is quite a bit harder. Here the plant cover is quite open, and consists of two quite distinct groupings of plants. Occurring frequently on these slopes are large, old, degenerate spinifex mounds. The loose, sandy soil on these mounds provides conditions quite different from the area between the mounds. On the intermound areas, the plants are mostly various species of grass: Aristida, Eragrostis, and, of course, Triodia irritans (spinifex). A number of shrubby species,

THE ECOLOGY OF CONSERVATION (Cont'd.)

such as *Cassia*, are also found here. Other genera found include *Eremophila*, *Abutilon*, *Sida* and *Goodenia*.

The grass spinifex grows in clumps or mounds which increase in size. The centre begins to die out, and a ring type growth continues. The hollow centre begins to fill with sand blown by the wind. Eventually the ring of grass around the outside begins to die off, leaving a mound that frequently has a slightly depressed dentre. When sufficient rain falls, these mounds become virtual gardens of flowering ephemerals, one of the most common being the succulent parakeelya (*Calandrinia*).

The dune crests are areas of actively blowing sand, and most of the plants are found along the edges of the crest. The most characteristic species of the crest is the dune canegrass (*Zygochloa paradoxa*). Some trees grow on the crests, frequently becoming partly buried. Usually these are not found in areas away from the crests. *Acacia ligulata*, *A. dictyophleba*, *Grevillea stenobotrya* and a species of *Gyrostemmon* are included in this group. Shrubby species of the genera *Psoralea*, *Calotis*, *Newcastelia* *Dicrastylis* and *Crotalaria* are all found on the active crests.

The listing of research opportunities in this area would be almost endless. Because of its isolation, harsh climate and lack of water, the Simpson Desert is not likely to become a recreational centre, though for those who enjoy this type of country, it can not be surpassed. Of solitude there is plenty, as there are of flies, wind, heat, and sand ..... and of beauty. While in no immediate danger of extinction or change through man's influence, it is really now, when nobody wants the land, that it should be set aside for the future. The color and beauty of the desert in flower do not happen very often, and when they do, very few people see it, but that is no reason for saying the land is worthless. Who knows what answers the organisms of this harsh landscape may provide for the eventual survival of the increasing masses of man on this planet.

* * * *

THE GRAMPIANS

By L.W. Elms

The Grampians comprise a group of mountains 55 miles long and 27 miles wide, located on the Great Dividing Range about 18 miles south of Stawell. The waters from these mountains flow northerly into the Wimmera River, and southerly into the Glenelg River.

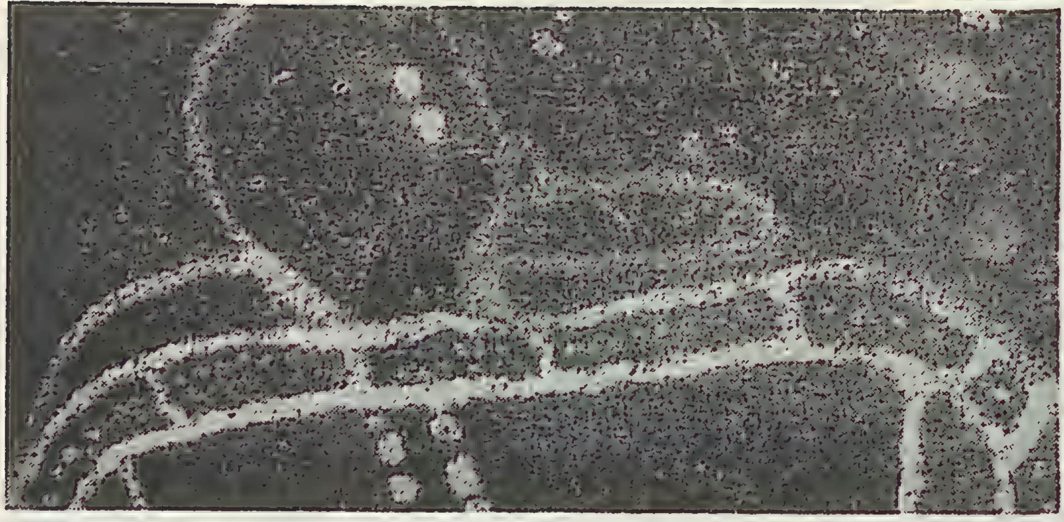
The sedimentary quartzose sandstone, approximately 5,000 feet thick, of which they are comprised, have been derived from rocks some 300,000,000 years old, which have only ferns, fishes and mosses to be found fossilised in them because they date back to the period when animal life was not yet evolved on earth. These rocks were uplifted along huge faultlines, resulting in the escarpments which we see today.

The Grampians were discovered in 1836 by Major Mitchell, who named them because of their resemblance to the Grampian mountains in Scotland. Mr. C.B. Hall was the first settler there in 1840, and "Halls Gap" was named after him.

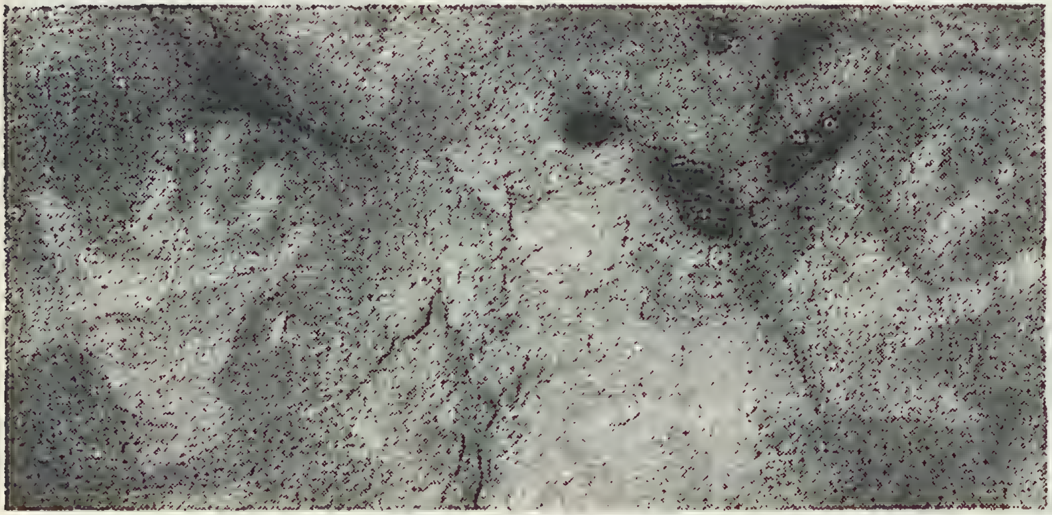
From a height of about 750 feet above sea level in the valley at Halls Gap, the surrounding escarpments rise to 2,300 or 3,000 feet, the highest peak of all being Mt. William at 3829 feet. There is only moderate periodic snow occurring in these mountains, and the average rainfall is 34 inches. However the ranges form the catchment area which fills the new Lake Bellfield, as well as the earlier storages at Lake Fyans, Lake Lonsdale, Wartook Reservoir, and Rocklands Reservoir, all of which are controlled by the State Rivers and Water Supply Commission, and total 618,000 acre feet. They feed into the 10,000 mile system of irrigation channels which reach right through the Wimmera up towards Mildura, supplying over 100,000 people in the 11,000 square miles of irrigated area, including 45 towns.

It has even been suggested that seepage from the Grampians, through beds of porous rocks, is the means by which the famous Blue Lake at Mt. Gambier is supplied mysteriously with water, so that no matter how much is pumped out of it for the town supply, the water level is never altered.

The Grampians are renowned for the springtime wildflowers, and some 900 varieties of lichens, mosses, ferns, grasses, orchids, shrubs



BUNJIL'S CAVE



CAVE OF HANDS

Photos by Trevor Pescott

THE GRAMPIANS (Cont'd.)

and trees have been found there, some of them being peculiar only to the Grampians district. Picking of wildflowers is strictly prohibited. In addition to over 100 species of native birds, including flocks of emus, many wallabies, kangaroos, deer and koalas are to be seen.

Aboriginal tribes once roamed over this area, and have left paintings on the walls of many caves as a reminder of their presence there. Most notable are the Bunjil Caves, Cave of Fishes, and Cave of Hands, but additional new caves are being discovered from time to time. When we also consider the attractive McKenzie Falls and Silverband Falls, it is understandable that the Grampians district of some 1,500 square miles is one of our outstanding tourist attractions in Victoria.

* * * *

STATUS OF CAPE BARREN GEESE OVERSEAS

By Mr. & Mrs. Noel Thomson

Extracts from Dr. Douglas Dorward's letter from "The Wildfowl Trust", Slimbridge, England, during his recent visit there:

"he (Peter Scott) has 3 pairs of Cape Barren Geese in his collection and although one pair is old and does not breed, the other two do. This last Spring, they did not do well, it being so cold (they nest about Christmas time and the little ones come out when the weather is very severe - that is, if the goose can endure the conditions while she incubates) and only one survived. But by and large the species breeds quite well in Europe in captivity and there are no worries about its continuance as a popular bird in private and zoo collections. One of the difficulties at Slimbridge is that because they are so aggressive they have to be kept in a separate pen, and that is why you did not see them on the film 'The Happy Man' Peter Scott, of the 'Rushy Pen' at Slimbridge, where a great variety of ducks and geese - wild ones from Siberia as well as the collection ones mix happily together."

SOME NOTES ON THE OTWAYS FLORA

Summary of a talk given to "Angair" Society at Anglesea 24/10/69

By Mr. J.H. Willis

There are about 700 species of flowering plants and ferns found in the Otway Ranges and adjoining coast-line. Included amongst these are over 300 species within a few miles of Anglesea township.

The Otways mark the western limit for a number of plant species more typical of East Gippsland, e.g. Leptorhynchos linearis; whereas at least seven species which occur in the Grampians reach their easterly limit in the Otways, e.g. Conospermum mitchellii and Leucopogon glacialis.

At Cape Otway itself, two species are significant; viz. Coast Ballart (Exocarpos syrticola), and a form of Myrtle wattle, (Acacia myrtifolia) having fleshy rounded leaves. Between Gum Flat (Anglesea area) and Wensleydale occurs the only Grevillea of the whole region - an unusual form of G. aquifolium, and the most easterly occurrence of this species.

The only plants completely restricted to the Otways are Leptorhynchos gatesii (originally found at Lorne, but not seen again for many years) and Platylobium obtusangulum var. spinulosium, - a bushy round-leaved form of the Common Flat pea which is known from only two or three places in scrubby hills a few miles west of Anglesea.

The Satin wood (Phebatium squameum), a small tree common in Tasmania, occurs in Victoria only in the Otway Ranges, while Pink Boronia (B. muelleri) at Glen Aire is the sole stand east of Gippsland. Another localized Gippsland plant with isolated Otway occurrence is Helichrysum rogersianum near Chapple Vale.

There are, of course, many other interesting plants in the Otways, and their ecological systems make a fascinating study.

The Otway Ranges have been explored botanically by several famous plantsmen. In 1857-58 Baron F. von Meuller traversed the Otways between Lorne and the Cape; specimens collected by him then are still in the National Herbarium, Melbourne. He was in the West Otways region (Gellibrand River etc.) during Feb.-March 1874.

Also in March 1874, Carl Walter collected plants between Apollo Bay and the Aire River.

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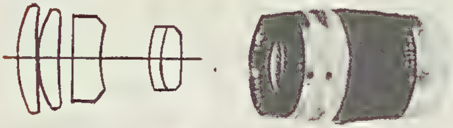

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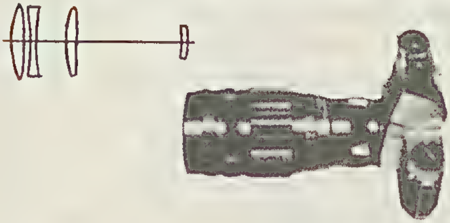

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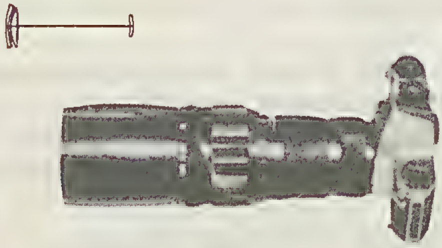

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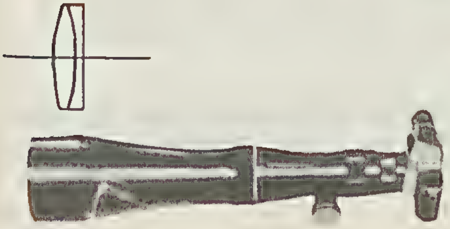

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SOME NOTES ON THE OTWAYS FLORA (Cont'd.)

George Henry Mariner, who had a small farm and nursery ("Alpine Nursery") at Apollo Bay in the early 1880's, covered much of the Otways on foot, seeking plants.

An orchardist, George Henry Adcock, published the first account of the Otways flora as a list in The Geelong Naturalist, October 1895.

Mrs. Merran Sutherland studied orchids in the Aireys Inlet area around the 1930's. More recently, collections by Mrs. Win. Denney, Mr. Geoff Carr and Mr. Willis himself have contributed further to our knowledge of the Otways flora.

* * * *

RARE SPECIES OF DIURIS AT CRESWICK

By Mr. Harry Barclay

Early in October 1970, I found a 'Diuris' in our local bush which took a lot of working out and finally decided it was Diuris brevissima, so I called in Mr. Allan Sonsee of Springmount and he agreed, and said that he had only seen it locally twice before, several years ago.

Diuris brevissima (short-tailed leopard-orchid) has a flower which is yellow, being well blotched red-brown and could easily be passed over for Diuris maculata (Leopard-orchid) or Diruis palachila (Broad-lip Diuris).

(The "Complete Edition of Orchids of Australia" says that Diuris brevissima was described in October 1939 by W.H. Nicholls at McDonald Park, Ararat, and that it is also known in the Pamonal district).

* * * *

FROM HILLSIDE TO OPEN CUT

By Adrian Davey

Mud gushed everywhere. The core barrell was emptied and the cores stacked in a box. Then began the long process of returning the drill bit to the bottom of the hole, seven hundred feet below. The clearing echoed to the noise of the drill, and the flies buzzed in the summer heat. Diamond drilling is a slow process as well as an expensive one.

However, drilling is by no means the only phase in mineral exploration. The bores being put down by this rig were in a deposit of Chromite, in North-east Victoria. The mine was described in a previous issue of this magazine. One of the characteristic problems of mineral discoveries is their isolation, and this deposit of Chromite on the Dolodrook River north of Heyfield in Gippsland shares this attribute. Heyfield, fifty miles from the mine by road is also more than three hours away because of the ruggedness of the terrain.

Chromite was first reported in the area by Government Geologists before the turn of the century. They identified it, thus putting an end to interest in the area from local stockmen who had thought it might be tin. A few small shafts were sunk in a couple of places but for many years, the occurrence was of no more than scientific interest. In recent years Chromite has been in demand and the price has risen, sufficiently for commercial interest to be taken in the Dolodrook deposit. A small Melbourne prospecting and mining company secured mineral search licences over likely areas on the south side of the Dolodrook River, at the Mt. Margaret track crossing. The Victorian Department of Mines advised the company on the geology of the area, and in 1965, after preliminary investigation, the company took out a mining lease over part of the area. The mining lease took in all areas in which surface outcrops of chromite had been found. Then began an intensive development program.

The value of a deposit has to be assessed in terms of grade, quantity, extent, depth and impurities before mining can become a possibility. The company interested a big Japanese group in the deposits and with assistance from the Victorian Department of Mines set up a test program. The Department did a gravity survey over

FROM HILLSIDE TO OPEN CUT (Cont'd.)

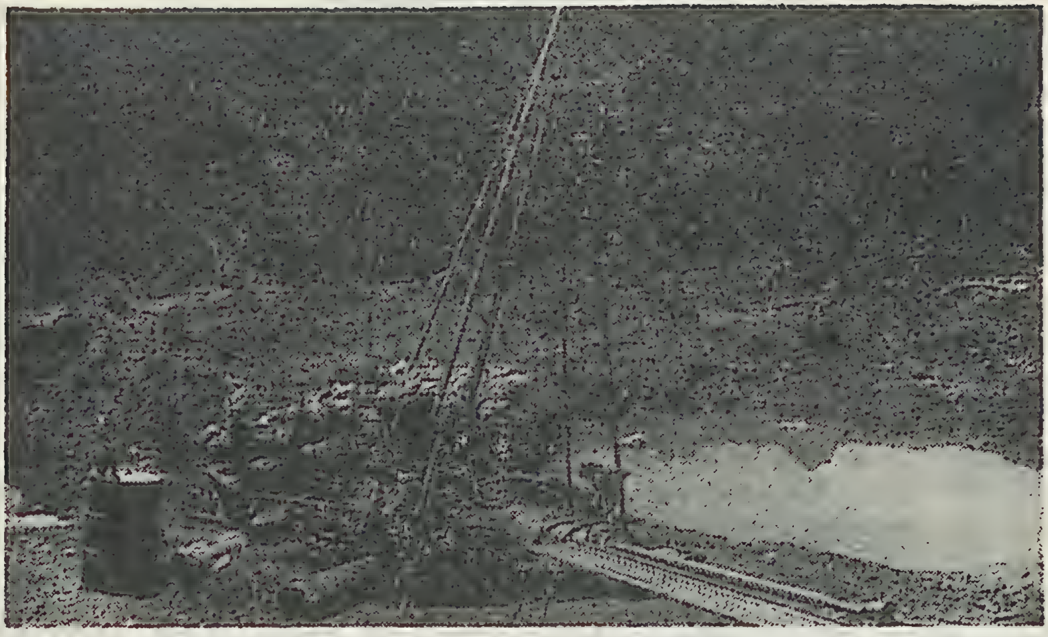
the area to point up any anamolies and commenced a program of diamond drilling. The Department also provided laboratory and assaying facilities for the assessment of the ore.

The mineral search areas were surveyed on a one hundred foot grid, and drilling started within the mining lease at sites influenced by the incidence of outcrops, but otherwise on the grid. Samples of top grade ore assayed at 53% Chromic Oxide, with some nickel present. Large areas of the mining lease were systematically bulldozed to determine the extent of Chromite outcrops, and several long trenches, known as "costeans" were dug right down to bedrock and samples taken. At every point on the one hundred foot grid over the mineral search areas soil samples had to be taken for geochemical analysis of Chromite content.

Such a program of exploration takes a lot of time in the field, and even longer in the laboratory. The diamond drilling has been going on for more than a year now, and completion is not in sight. The logging, analysis, and assessment of the cores is estimated to take over a year.

As an employee of the company, I was engaged in soil sampling and the mining of test loads of ore. Chromite occurs here only in supentine, and the areas of serpentine are easy to pick from the surrounding countryside. The whole area is composed of sandstones and slates and covered with stringybark and box timber and scrub. The small areas of serpentine are peculiar in that they are naturally almost clear - they are grassed with yellow box growing here and there. In summer the dry grass stands out from the surrounding scrub and the serpentine areas are easy to see from the air, or from one of the neighbouring peaks. The only area of supentine other than that at present under examination, is a patch several miles away, above the Dolodrook on the ridge between the Dolodrook and Wellington rivers. This area, known locally as "The Monument" has little or no Chromite and is not at present under investigation.

Soil sampling was an interesting operation. It only got tedious when 100 buckets full of soil had to be carried up to half a mile across ridges and gullies to be picked up in the Land Rover - the country in the area is all extremely rugged. The soil sample consisted of all the surface soil to a depth of three inches within a yard square. This was bucketed, labelled, and taken to



THE DIAMOND DRILL RIG

CORES OF SERPENTINE FORM ONE OF THE DIAMOND DRILL HOLES

Photos. by Adrian Davey.

FROM HILLSIDE TO OPEN CUT (Cont'd.)

the nearest waterhole where half of the sample was then panned like gold, chromite is very dense, and an indication of chromite content can be got by concentrating the sample in a pan. The original sample and the residues from the panning were then bagged separately and tied together, labelled, and despatched to the laboratories in Melbourne. Taking soil samples on a one hundred foot grid over leases two miles long and a mile wide is a long job, believe me!

The Dolodrook River runs westward from the Gable End into the Wellington River. The mineral leases, enclosing their mineral mining lease are along the south side of the river and the Mt. Margaret - Tarli Karng track runs through the leases.

On the flat at the river crossing is the mine camp, base for drilling crews and company men. The camp, a couple of galvanized iron garages and a fair bit of corrugated iron, with its dirt floor, didn't exactly provide all of the comforts of home. Anyone wanting to wash off the day's clinging dust could wash in the river twenty yards away, or stand under the shower under a forty four gallon drum on a stand, with its splendid view of the surrounding ranges! We did have a gas refrigerator, and thirty two volt lighting but we cooked over an open fire, as often as not, in a camp oven. After a long hot day up on the hill it was sheer ecstacy to collapse into the dusty depths of one of the ancient armchairs gracing the "living room". We had two blue heelers and a pup around the camp and because of the hit and miss construction of our living room it was virtually impossible to keep them out. At least they kept the floor clean of scraps!

The most interesting operation was sinking test shafts to get trial samples of ore. In one place where high grade ore outcropped at the surface, we took two and a half tons of ore out of a hole only three feet or so deep and a yard or two across. Chromite is heavy stuff, and high grade ore filling one third of a superphosphatic bag weighs more than a hundredweight. Not all of the Chromite is high grade. Mostly it occurs within the pale green or grey supentine, in varying proportions, as black crystaline masses. It was sinking a shaft into the supentine that the work really began. Most of the supentine is light in colour and the glare and heat gets tremendous as the day goes on. Holes had to be drilled with a pneumatic drill and the rock blasted

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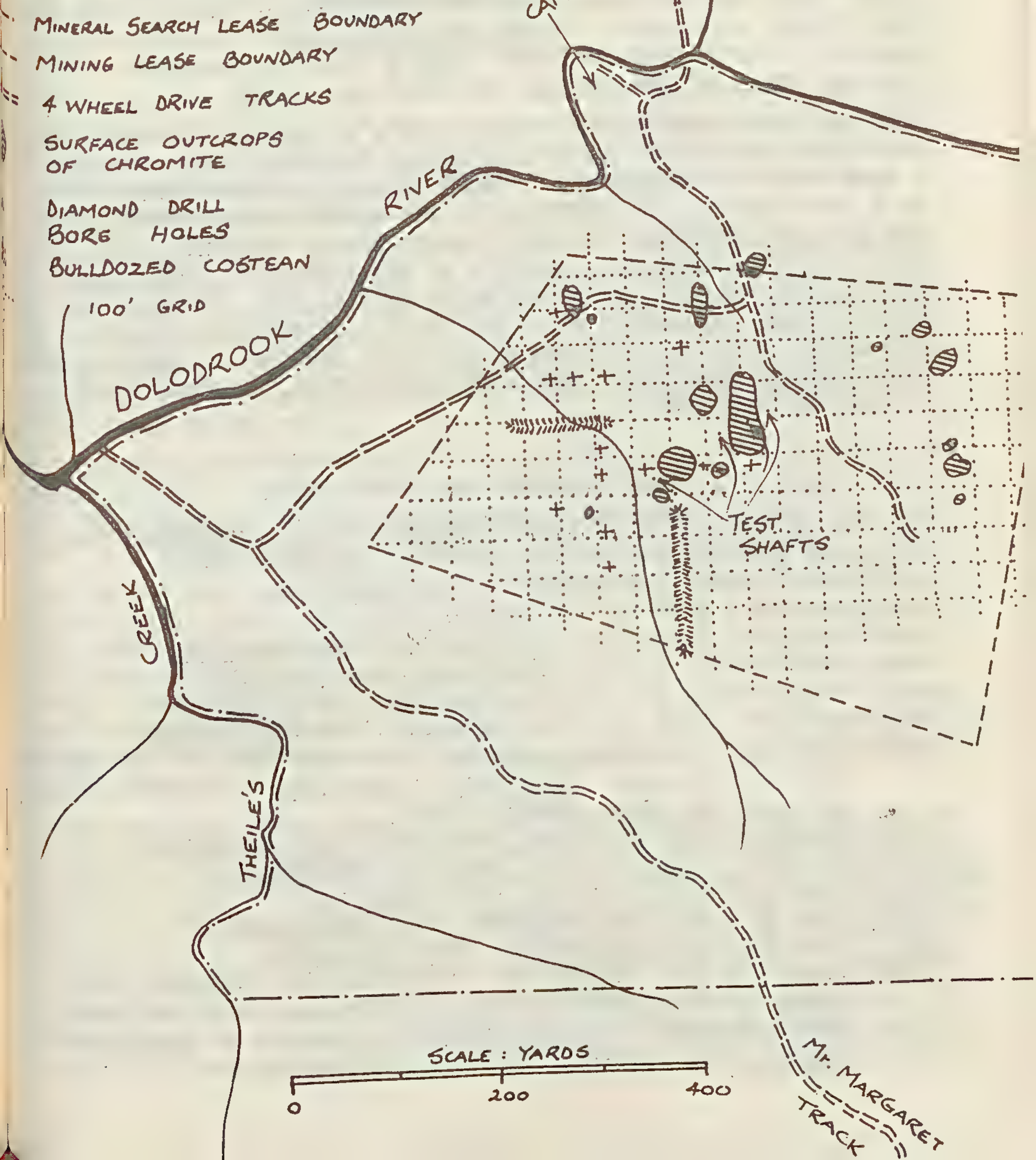
ROMITE MINE



FROM HILLSIDE TO OPEN CUT (Cont'd.)

and then dug out, graded, and stacked. We rarely bothered to go deeper than ten feet because of the difficulty of getting the ore out without a windlass. By the end of the day in the hot sun, covered in acrid dust, and ears ringing from the pneumatic drill, the cool shade of the camp by the river was luxury.

Some day then, the Dolodrook may tremble at great explosions and echo with the roar of great machines as Chromite is torn out of a huge hole in the ground. If that happens, no doubt there will be a good road in and comfortable, air-conditioned accommodation for the men operating the mighty earth-moving equipment, but it will only have been made possible by the systematic development program carried out, and still being carried out, in isolation under pioneering conditions. Only assays of numerous samples, geological appraisal of diamond drilling, geochemical surveys and metallurgical tests can lead to an operational, economic mining venture of this kind.

* * * *

VEGETATION OF THE PARKER RIVER

Mr. J.H. Willis of the National Herbarium, has recommended the following corrections, in Vol. 7, No. 3, November 1970.

p.67 (last word) - for "cinereum" read paralium.
p.68 (line 4) - for "ovaria" read oraria.
p.68 (3rd parr.,line 1) - for "cinereum" read paralium.
p.68 (5th last line) - for "pubescens" read lanigerum.
p.70 (last line) - for "verticilata" read verticillata.
p.71 (3rd.parr.,line 7) - for "gonicalyx" read goniocalyx
p.71 (same parr.) - delete sentence "this occurrence is the western-most of its range" (Eucalyptus kitsoniana is frequent along parts of the Lower Glenelg River).
p.72 (2nd.parr.,line 8) - for "siberiana" read sieberana.
p.72 (3rd.parr.,line 2) - for "Ampaera" read Amperea.
p.73 (line 1) - for "baxteris" read baxteri.
p.73 (line 3) - for "juniperinium" read juniperinum.
p.73 (line 7) - for "lanceolata" read lanceolatus.
p.93 (lines 9 & 10) - delete the words "and when ruptured hangs like a skirt around the stem of the mature fruiting body" (This statement might apply to the velum of an Amanita or Lepiota, but certainly not to a Cortinarius).

FERNS OF THE DISTRICT - PART 4

By E.G. Errey

THE WATER-FERN GROUP

Of the eight Victorian species in the Blechnum genus only one, common in the Alps, is not found in the Geelong district. Not only is it the largest genus numerically, ahead even of the Spleenworts, but it is a very common and widespread group, some members forming dense and extensive patches on the gully floors.

The permanently moist gullies of the Otways provide an ideal habitat for these plants. Often where the surrounding bush has been cleared, some Water-ferns will survive, and even persist after fires have passed through. In the Brisbane Ranges rainfall is much lower, but several gullies there carry an interesting display of ferns, particularly where seepage from water-supply channels augments the normal level of the soil.

When the Western Victorian F.N.C. delegates joined us on the Brisbane Ranges excursion in April this year, several species of Water-fern were found growing in close association with Tree-ferns and Ground-ferns in a permanently wet creek-bed below the water channel.

There is one remarkable feature of all Blechnums (with the exception of the Gristle Fern), which distinguishes them from other groups. While most ferns produce spores on the underside of fronds of normal shape, Water-ferns develop special fertile fronds with very narrow pinnae. These have their edges rolled back, almost hiding the spore cases clustered closely on the under surface. These fertile fronds are so distinct that they could easily be mistaken for a different species of fern.

Perhaps the best known Blechnum is the Fishbone Water-fern which has the typical fishbone conformation, particularly on the fertile fronds. The pinnae at both ends of the fronds are shorter than the middle ones, giving the fronds a long oval or lanceolate shape. This distinguishes them from the Gristle-fern, which is somewhat similar in appearance, but which has fronds triangular in shape, tapering towards the point.

The Gristle-fern, too, differs as mentioned earlier in having no distinct fertile fronds, but bearing sori in lines along the midribs of mature pinnae.

THE WATER FERN GROUP (Cont'd.)

Another fern with fishbone type foliage is the Lance Water-fern. This is distinguished from the Fishbone Water-fern by the green stipes, or stems. Those of the Fishbone are very dark brown and shiny. The pinnae on the Lance fronds are shorter and curve forwards.

(The Fishbone Fern commonly grown as a pot-plant is an unrelated species from tropical regions, including north-eastern Australia. It has much shorter pinnae attached by the midrib only, forming long narrow fronds. Pockets of sori are arranged in lines between midrib and edge on the backs of normal fronds.)

Pinnae of the Ray Water-fern are shorter and more rounded than those of species already mentioned. On the fertile fronds, the pinnae are short, narrow and widely spaced. Both the Ray and the Lance ferns are found below the Erskine Falls near Lorne.

Hard and Soft Water-ferns have well-separated pinnae, wider than those of the other species, attached by the midrib to the rachis. Hard Water-fern, discussed in Part 2 of this series, (Vol.7, No.2) has its fronds triangular in shape, the pinnae ending abruptly instead of tapering towards both ends of the fronds as those of Soft water-fern do. The latter species, as its name implies, is not so stiff and leathery, nor are the pinna edges so rough to touch. In spite of this, it is often found in more open positions than its coarser relative. Young fronds of both species often exhibit an attractive bronze appearance.

The only other Blechnum listed for this district is the Strap Water-fern, rare in the Otways. It is rather like the Kangaroo Fern in appearance, sometimes divided and sometimes with single straplike fronds.

This is an interesting group of ferns, the most often seen being the Fishbone Water-fern. Next most common is probably the Hard Water-fern, with the others requiring more searching. I have yet to find the Strap Water-fern and the Gristle-fern.

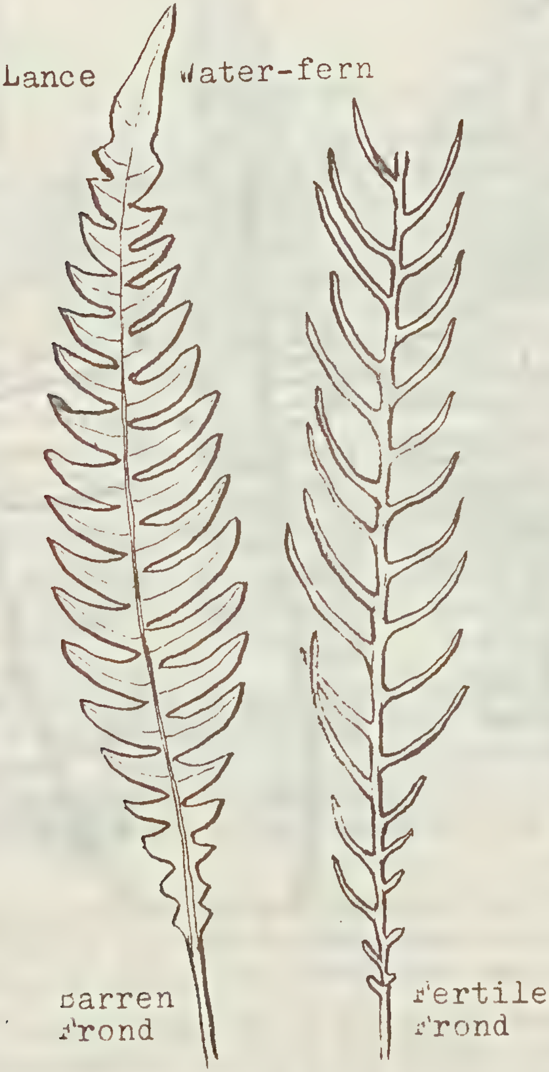
Common and Botanical Names:

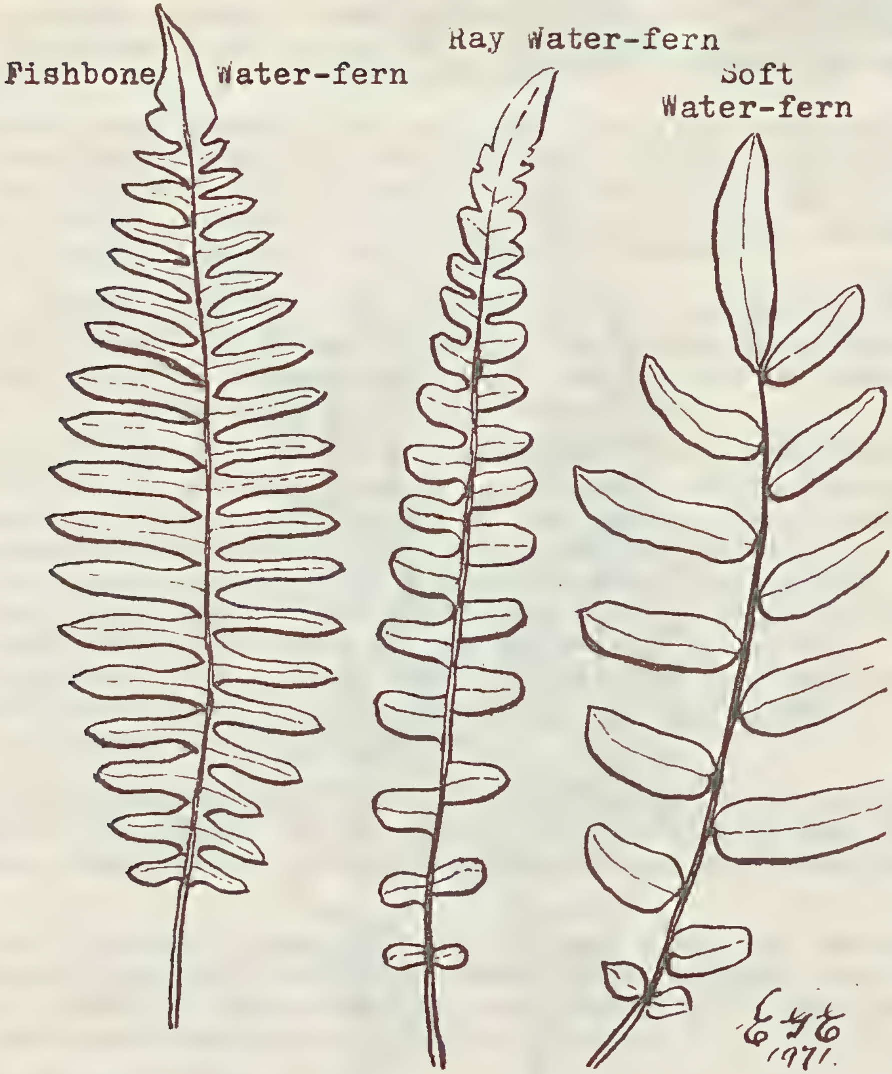
Fishbone Water-fern	Blechnum nudum
Gristle Fern	Blechnum cartilagineum
Lance Water-fern	Blechnum aggregatum
Fishbone Fern	Nephrolepis cordifolia

THE WATER FERN GROUP (Cont'd.)

Common and Botanical Names (cont'd.)

Ray Water-fern	Blechnum fluviatile
Hard Water-fern	Blechnum procerum
Soft Water-fern	Blechnum minus
Strap Water-fern	Blechnum patersonii




Fishbone Water-fern
Ray Water-fern
Soft Water-fern
1971

AT RANDOM

UNUSUAL BEACH FIND - by Jack Wheeler.

Mr. & Mrs. Gower of Ballarat are frequent weekend visitors to Anglesea. Recently Mrs. Gower was doing one of her favourite beach walks at Anglesea, when she noticed on the sand near high-water mark, a large oval shaped, grey-green egg, larger than goose size. She was puzzled as to its identity so placed it in her bag and carried it back all the way to Ballarat and took it into the Ballarat Courier office for J.R.W. (editor of Nature Notes) to identify. When told that J.R.W. now lived in Geelong, they were undaunted so dropped it into me late one evening whilst in bed, during my recent convalescence.

They were on a return trip to Anglesea, so it was not much out of their way. I immediately identified it as a Black Swan's egg.

Well, how did a Black Swan's egg become stranded on Anglesea beach and when I have not known of them breeding in the immediate Anglesea district?

The Only explanation I could give was that a few days before, the Barwon River had an almost record flood and a favourite breeding ground of Black Swans, the Reedy Lake, was completely submerged, and when we know that dozens of swans breed there every year, one can imagine the number of nests that would be flooded and eggs swept away.

There is little doubt that with the Barwon in full flood eggs could easily be washed out to sea and at that time strong east winds prevailed and currents could have washed this egg as far as Anglesea.

I have seen swan's eggs washed up in thousands around the shoreline of lakes in the Corangamite district following floodings of nesting islands, but in all my hundreds of beach walks, never a swan's egg

AT RANDOM (Cont'd.)

at sea.

P.s. On examination this egg was well addled.

CARE FOR INJURED BIRDS - by Jack Wheeler.

Mrs. Dawes of Ivermay, north of Ballarat , writes: "Early this week we had a window crasher, an immature Crimson Rosella, which hit the window with a terrific thump and fell on its back and to all appearances appeared to be dead. However, I picked it up, placed it in a carton with a hot water bag beneath a woolly, and covered the carton. In about half an hour its eyes were open and head up and later was sufficiently recovered to pick at some of the parrot seed I provided.

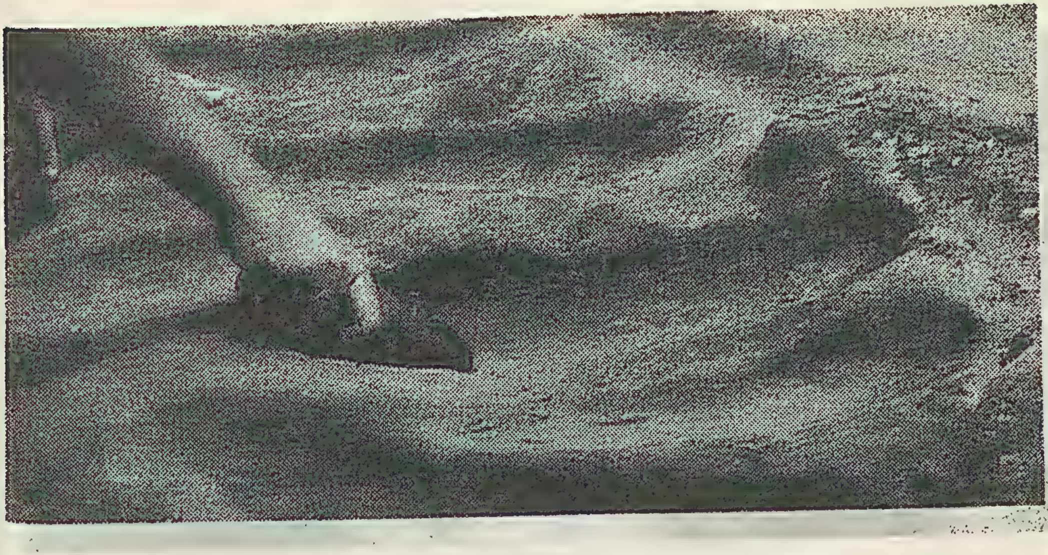
After spending all night by the side of the fire, was released next morning and flew off as if nothing had happened."

Mrs. Dawes is to be commended for this action. The bird, in window crashing had received a bad stunning, and at the same time suffered shock. This bird may not have recovered if Mrs. Dawes had not treated it as she did.

Roger Thomas, one of our Ballarat members of the G.F.N.C. wrote recently telling me of how Miss R. Beaton of Wendouree had found an injured Raven in her yard, the injuries being an injured eye and a damaged wing which prevented it from flying. Miss Beaton cared for the bird until the wing had mended and Roger then took the bird for release in Victoria Park opposite his residence in Alfredton. Roger found the eye was beyond treatment and that the bird had a permanent injury there, but the wing had healed. On close examination he found that this Raven was in fact a Little Raven, one of the new species of Ravens found to exist in southern areas of Australia, such as around Ballarat and Geelong.

So, thanks to Miss Beaton and Roger Ballarat now has flying around, (still we hope), a one-eyed Little Raven.

* * * * *



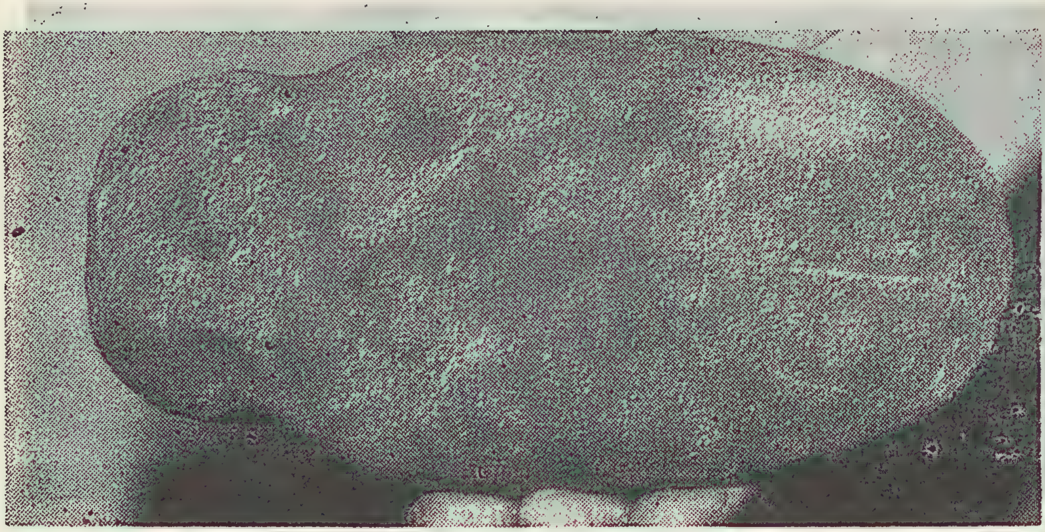
The photograph above is of a large slab of stone in the Otways, where Aborigines of long ago ground their rough stone axes to make an edge on the axe sharp enough to cut into trees where possums lived.

Aborigines used several types of stone from which to make axes, and when an outcrop of good, hard stone was found, the Aborigines would break off blocks about as large as a house-brick.

These they chipped into the rough shape of the finished axe, these rough, unsharpened axes being called "blanks".

Blanks were traded by the Aborigines, and the final owner of the axe had to find a good piece of sandstone which could be used to grind the blank into the correct shape, and sharp enough to cut into trees.

The finished axe was then tied and glued onto a handle to produce a very useful tool.



Aborigines are known as "Stone Age People" because they had only wood and stone from which to make all their tools, not only axes like the one shown in the photograph above, but knives, diggers, needles, spear-points, clubs and so on.

Some of these tools were used only a few times before they became blunt or broken, and often on the old camp-site that the Aborigines used we find the discarded ones.

These tools are called "artifacts", and the people who study the old aboriginal way-of-life find that the artifacts give a great deal of information that they could never otherwise find.

By analysing the types of stones used in making the artifacts, it is possible to find where the stone came from, and so determine the range of tribes, their hunting methods, and their dealings with other tribes.

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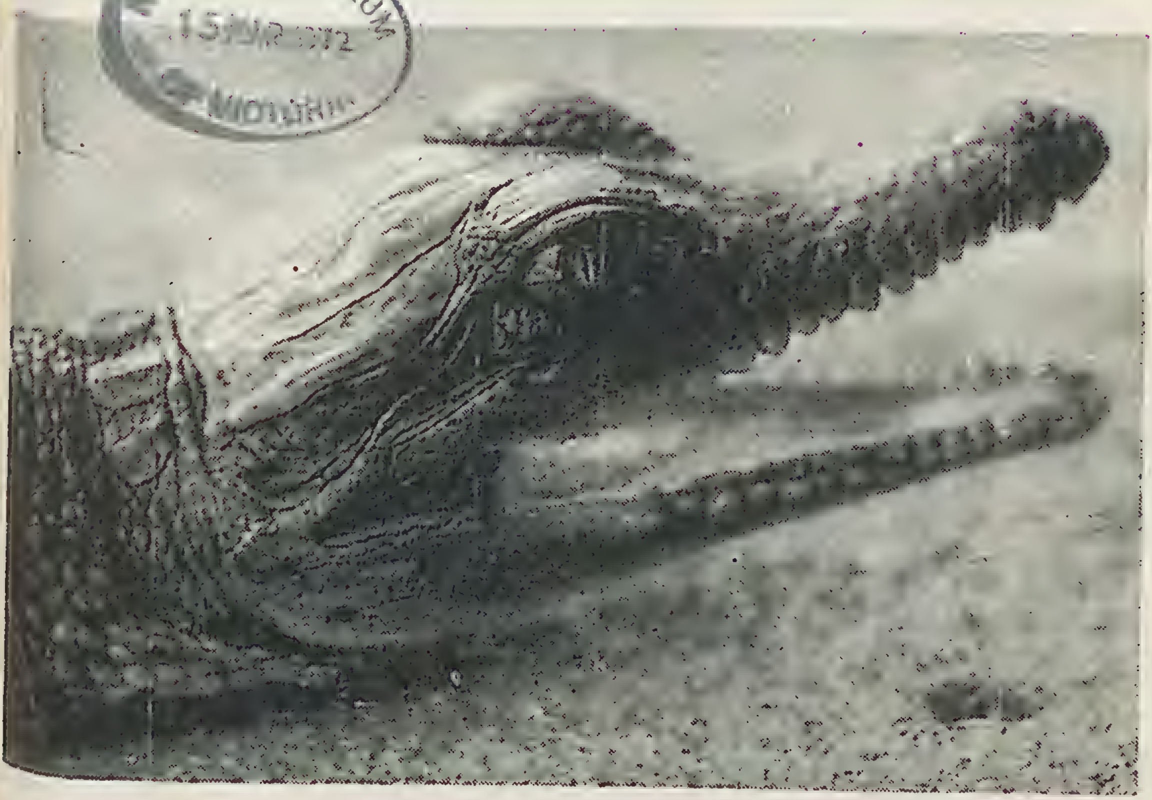

Young Freshwater Crocodile

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Hon. Editor: Trevor Pescott

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The Statements and the opinions contained in the papers published in this Journal are the responsibility of the respective authors.

MEMBERSHIP

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COVER PHOTOGRAPH: YOUNG FRESHWATER CROCODILE - Photo by T. Pescot

GEELONG NATURALIST

Vol.8. No.2. August 1971

EDITORIAL

Conservationists in Geelong have been rather apathetic towards the effect that powerboats are having on the Barwon River; a Sub-committee has been formed within this Club to investigate the problem, and it is hoped that before the summer is over, a submission to the G.W.S.T. will have been prepared.

In order that Club members can appreciate some of the factors involved, consider these few points . . . . Most boats using the River are towed by cars purchased in Melbourne; presumably, then, few local people use the Barwon for powerboating. Powerboating is not allowed on the Yarra nor on most other waterways and lakes near major cities.

The number of boats which can use the Barwon at any one time is small, but by continued use, and because as one boat stops another starts, the River is almost continually swept by wash from boats from early morning until night several days each week through about six months of the year.

Exhausts from both 2-stroke and 4-stroke motors is directed either into the water or onto the surface; all the engine wastes from the motors are directly polluting the river. Since no motor is perfect, it is inevitable that some oil and fuel is discharged into the river the possibility of a breakdown sending all of the oil or fuel from a motor into the river is high. The wash of the boats must be causing erosion of the river banks; compared with the boats, natural erosive forces, floods and winds, are not significant. All the material eroded from the banks and all motor wastes end up in Reedy Lake, which is one of Victoria's best waterbird areas.

Don't be misled by the number of Moorhens on the river after boating ceases; they, as surface feeders, are about the only bird which can benefit from the action of boats on the river. Noise and activity disturbs all bird and animal life, few tolerate it.

TREVOR PESCOTT,
Hon. Editor.

OTWAY RESERVES

Trevor Pescott for Otway Survey Group

There seems to be little doubt that the Forests Commission of Victoria has plans for three Forest Park Reserves in the Otways.

Angahook Park is already well known, an area along the Erskine River has been investigated by the Forests Commission of Victoria, and the suggestion that the Parker River area may also become a reserve is not new.

The Otways Survey Group of this Club is concerned that the Parks declared by the Commission are too small - each being less than 10,000 acres.

It is therefore proposed to approach the Forests Commission of Victoria to include the Calder and Aire Rivers in the Parker proposal to cover about 30,000 acres.

Other Otway areas under investigation by the Group are the Landslide Lake, Boonah, Wurdale, Carlisle River and Moonlight Head areas; each one of these contains land well worthy of protection.

The articles in previous copies of "Geelong Naturalist" have created considerable interest and it is hoped that more will appear in later issues.

* * * * *

WHALES

By Anon.

The largest animal now living (and probably the largest which has ever inhabited the Earth) is the Blue or Sulphur Bottom Whale (Balaenoptera musculus), also called Sibbald's Rorqual. The typical adult female measures 86 feet in length and weigh about 109 tons. The largest specimen on record was probably a female measuring 107 feet taken near South Georgia in 1922.

Blue Whales inhabit the colder seas and migrate to warmer waters in winter. Observations made in the Antarctic in 1946-47 showed that a Blue Whale can maintain speeds of 20 knots (23 m.p.h.) for 10 to 15 minutes. It has been estimated that a 90 foot Blue Whale travelling at 20 knots would develop 520 horsepower.

ALPINE WEEKEND - CLUB EXCURSION TO MT. BAW BAW

By Jack Wheeler

Mt. Baw Baw, with an elevation of 5127 feet above sea-level, is today the nearest developed ski resort to Melbourne, and at approximately 100 miles from that city offers excellent ski-ing and tobogganning each winter; apart from the snow, it has scenic mountain views and rolling valleys which extend southwards towards the well settled areas of Warragul and Moe.

Mt. Baw Baw only became popular as a ski resort as late as 1945 but it was not until nineteen years later that a high altitude road gave access to the plateau which extends to the summit, and here today a small ski village is being developed.

Prior to 1964, skiers had to labour up steep inclines with materials to build the first ski lodges, and these formed the nucleus of this now popular resort; one of the first was the Mt. Baw Baw Ski lodge and this lodge was the head-quarters of our Club's visit over the long Australia Day weekend 1971. (Saturday and Sunday, 30/31st January and Monday 1st February).

During the summer months, with the melting of the snows, alpine areas such as Mt. Baw Baw are transformed to nature's gardens with a great variety of alpine plants which grow and bloom to give much color where weeks before deep snow drifts excluded most plant life.

To reach Mt. Baw Baw, most of our members travelled via Yarra Junction, Noojee and Tanjil Bren or an alternative route via Drouin and Tanjil Bren. From Tanjil Bren, the road winds into the range and is a very scenic route with tall mountain ash forests and rich tree-fern banks and gullies. It is very evident as one travels this route, that the remaining skeleton trunks of tall timber are a grim reminder of the 1939 bushfires which not only devastated the area but took toll of many human lives.

The advance guard of our members arrived at the summit late afternoon and we settled down to wait for our guide Mr. Jack Sterkenberg from Moe to unlock the lodge; eventually one of our members spotted an open upstairs window, and with the aid of a ricketty ladder gained admission and we were glad to settle in as rain had already set in.

One car load of ladies spent the night at Tanjil Bren, having been delayed with a 'flattie' and a passing motorist obligingly later

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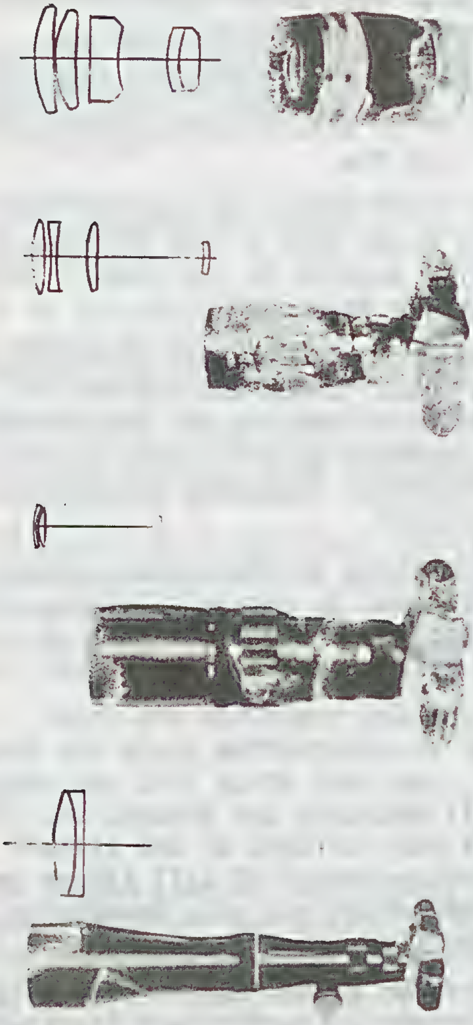

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ALPINE WEEKEND (Cont'd.)

did the change for them, and on arrival next day at the lodge did not realise that the good samaritan was none other than a member of our group, also heading for Mt. Baw Baw.

We found the lodge very comfortable; downstairs was a large lounge kitchen with several gas stoves, dining alcove, drying room (which proved a boom), toilets and shower. Upstairs was a large bunk room, known as Adams' Den (which became Eves' Den), and four smaller bunk rooms and were appropriately named - Flue Room, T'other Room, Halls Gap and Lilac Room. Also upstairs was a large room set aside for ski equipment and lockers.

The view from the lounge was of a long ski-run which led up to the summit. Actually the floor level of the lodge was said to be 4187 feet above sea level.

G.F.N.C. Members Attended: Camping - Misses Elsie, Florrie and Frances Poole. Mt. Baw Baw Ski Lodge -
Eves' Den: Mesdames Beryl Campbell, Carlene Huggins, Lily Mitchell, Dorothy Primrose, Betty Quirk, Betty Rushbrook, Edna Yeoman; Misses Mary Arthur, Mary Brownhill, Lisle Hill, Molly Martin, Diana Primrose, and Leila Ramsay.
Flue Room: Mr. Jack Wheeler, Mrs. Trix Wheeler and Dianne Wilson.
T'Other Room: Messrs. Jack Primrose, Hans Streefkerk, Jack Sterkenberg and Len Wilkinson.
Hall's Gap: Messrs. Arthur Chapman, Peter Fagg, Winston Huggins, John Mitchell and Ian Woodland.
Lilac Room: Mr. Vic Reys, Mrs. Carrie Reys, Liesje Reys and Bennie Reys.

A total of 33 attended and included our Guide and member of the Mt. Baw Baw Ski-Club Mr. Jack Sterkenberg.

Weather: Rain set in late afternoon on the Friday and continued throughout the weekend and did not abate until the Monday morning when about 10 a.m., the clouds cleared and the sun broke with a perfect day.

The rain did not deter members from visiting areas around the lodge for short periods and several longer walks were undertaken despite the unpleasant conditions, and once we were rugged up with rain coats and protective gum boots, our interests did not wain.

On the Saturday evening we entertained ourselves with a quizz,

ALPINE WEEKEND (Cont'd.)

games, and Mr. Jack Sterkenberg gave a most interesting talk of the development of Mt. Baw Baw Ski Lodge, and with available ski equipment, displayed its use for young and old.

Jack Sterkenberg was most helpful in every way and did everything possible to make our stay full of interest and even conducted parties to the summit on no fewer than three occasions.

On the Sunday evening, we were permitted to use the lounge at the local restaurant for a picture evening as our own 240v power had failed. Despite the rain, we had a full house, and the slides of our various members were greatly appreciated.

The Mt. Baw Baw Alpine Area:

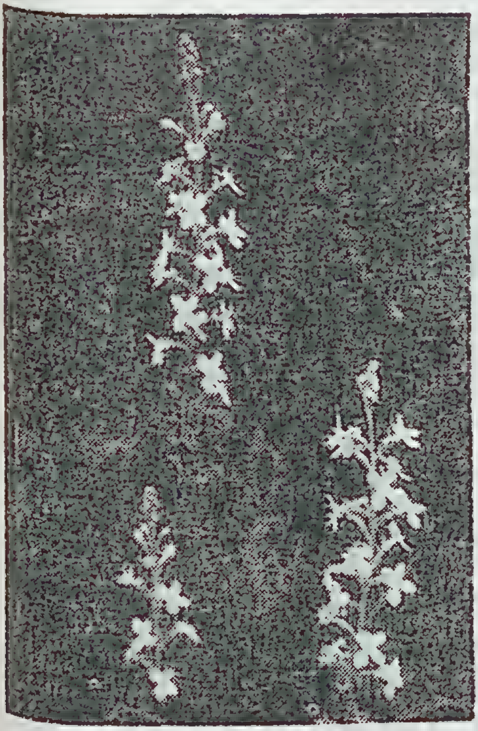
Our main interest was in the flora of the area, and this we covered to the best of our ability. Ski-runs have been cleared of Snow Gums (Eucalyptus pauciflora var. alpina) but much of the natural cover still exists; it was interesting to note and compare the present day growth of these hardy eucalypts which are a little more than half the height of the original trees destroyed in the 1939 fire over thirty years ago. It is apparent that it will take the best part of another thirty years for these trees to reach full growth.

The most colorful plant during our visit was the Grass Trigger-plant (Styligium graminifolium) and their tall, rich pink flowers covered many acres in the vicinity of the lodge and summit. Two completely white plants were observed in full bloom.

Another striking and very common plant was the Alpine Candle-heath (Richea continentis), with masses of creamy flowers on robust stems, but for unprotected legs, the spiny pointed leaves caused much discomfort.

Silver or Snow Daisies (Celmesia longifolia) were not as common as I have seen in other alpine regions, but never-the-less what we did see were most attractive and added beauty to the scene. Within 200 yards of the ski-lodge, was an attractive patch of Mountain Gentians (Gentianella diemensis) the flowers of which were just opening out. We were a little early to see them at their best. These annuals produce beautiful cup-shaped flowers, creamy white with vertical purplish-blue lines.

Sky Lilies (Herpolirion novae zelandiae) were quite common in the



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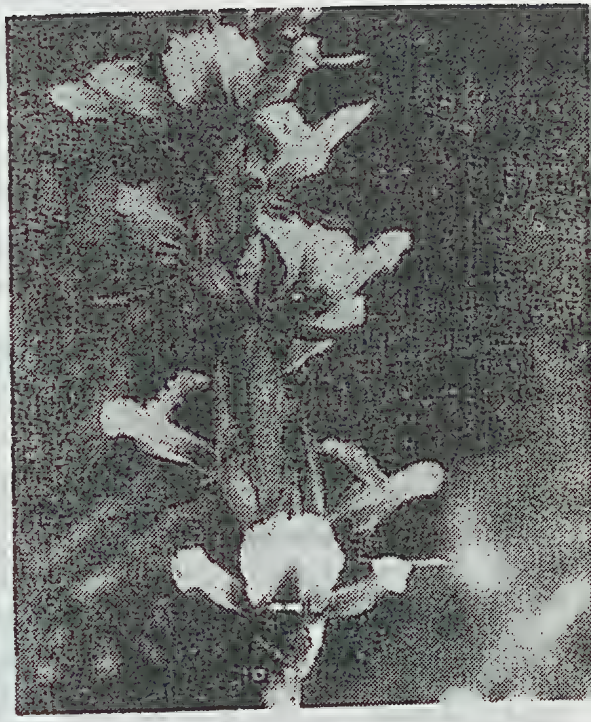

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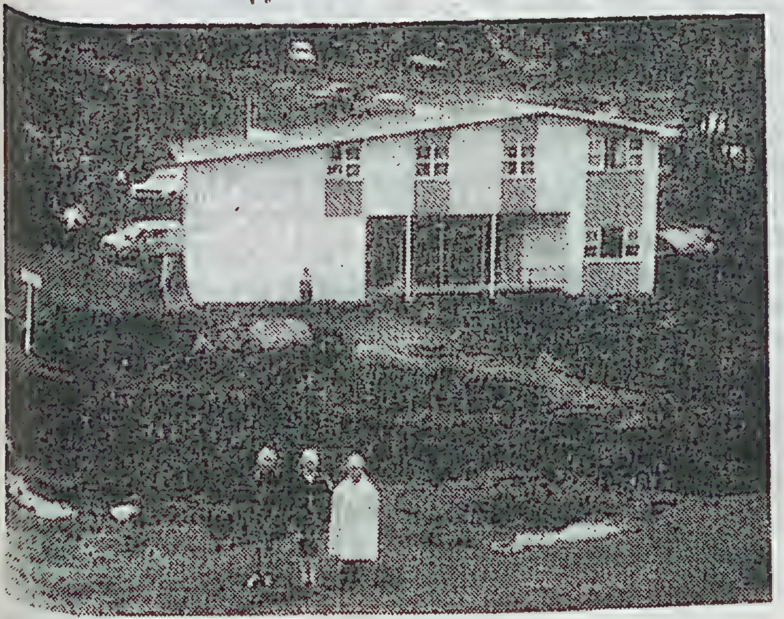


1. White phase Grass
   Trigger plant.
2. Mt. Baw Baw Chalet.

Photos by J. Wheele

3. Sutton's Leek Orchid

Photo by Frances
Poole.

2.

ALPINE WEEKEND (Cont'd.)

cleared areas where moss-bogs were evident and these starlike white to pale-blue flowers were to be seen in all areas visited.

Another prostrate plant was the Creeping Fan-flower (Scaevola hookeri) with small fan-shaped pinkish flowers, and these also were quite common, and added much color to herbfields.

In several of the moss-beds, members found good concentrations of Alpine Sundews (Drosera arcturi) their blunt linear leaves in rosettes, but few were yet out in flower; these are white, not unlike the Scented Sundew of our lowland bush.

Very abundant were yellow dandelion-like rich-yellow flowers on a single stem, identified as the Alpine Groundsel (Senecio pectinatus).

One walk which took us down to a gully near the north-west section of the village, was full of stunted and young growth of Myrtle Beech (Nothofagus cunninghamii), the bronze shade of fresh growth being distinctly noticeable. We wondered in these harsh conditions, would they ever reach the giants seen further down the mountainside?

Orchids are forever popular and members recorded five species, all within a short distance of the lodge. They were Green Bird-orchids (Chiloglottis cornuta), Alpine Greenhoods (Pterostylis alpina), Veined Sun-orchids (Thelymitra venosa), Alpine Leek-orchids (Prasophyllum-alpina) and Sutton's Leek-orchids (Prasophyllum suttonii).

The latter species was most common and many flowers were noted. They are a most attractive species and a delight to see flowering so well under such wet conditions. Many veined Sun-orchids, some in patches of twenty to thirty plants, were noticed heavily in bud but none had burst open; several of our members returned to Mt. Baw Baw the following weekend under much more perfect conditions and they said these orchids were magnificent. Around the bases of large granite boulders was the place to find the dainty Green Bird-orchid but they were very scarce and only a few were found.

One procumbent shrub of particular interest very close to the lodge was the Baw-Baw Berry (Wittsteinia vacciniacea). This species is peculiar to this region of the ranges; the oval shaped leaves are finely toothed whilst the fruits are globular white berries with a greenish or reddish tinge.

ALPINE WEEKEND (Cont'd.)

Another attractive plant which was reasonably common, was the Glacial Eyebright (Euphrasia glacialis) found throughout the alpine meadows and the flowers whitish, some pinkish, were not unlike those of some mint-bushes.

Two other rich golden flowering plants are worthy of mention; Billy Buttons (Craspedia uniflora), which was very common swaying on tall stems, and the Hoary Sunray (Helipterum albicans) with most attractive yellow flowers very much resembling everlastings.

Of the birdlife, very few were recorded for the summit area; in fact only three species were seen during the weekend, these being Flame Robin, Pipit and Australian Raven. But immediately one travelled a mile or so from the summit down towards the carpark, birdlife was very plentiful; between Tanjil Bren and the summit, several Lyrebirds were reported calling or as sightings of birds crossing roads. Near the car park below the summit, the familiar call of the Pilot Bird was clearly heard on one occasion.

Immediately the sun revealed itself on our final day, dozens of Grass Skinks (Leiolopisma entrecasteauxi), came forth after three days of being weather bound; their lightning movements indicated they would not be easy to catch. One wonders what happens to them during the long winter months, but expect such hard conditions creates toughness in their breed. Certain times of the year, and particularly during the summer, the Alpine Grasshopper becomes very plentiful and what delightfully colorful creatures they are!

The crystal clear waters of the mossy bogs were alive with tadpoles and no doubt developed to keep the frog population stable. We hunted for the yellow and black Corroborree Frog without luck, but instead collected an attractive Alpine Yabbie, rich brown with rich blue claws.

On many of the Snow Gums, snails minus their shells were noticed and they, too, provided an attraction to those of us interested in Nature's realm.

We broke camp on Monday, said our goodbyes, and a hearty thanks to the organisers and particularly to our caretaker guide, then left with happy memories of a weekend full of interest. We hope these Alpine visits can become an annual event on our Club calendar.

* * * *

'THE THIRD DIMENSION'

By L.W. Elms

The normal way to measure up any area of land is to measure its extent in both a North-South and an East-West direction.

The term "Third Dimension" is then used to refer to heights above this area, or depths below the area, and in the realm of Natural History many interesting things are to be found in this "Third-Dimension".

Take, for example, an area of ocean adjacent to the shore. The shells of various shellfish lying on the beach, are comparatively brittle, because these shellfish are not subjected to any great pressures in the shallow waters. By contrast, however, the giant Clam Shells and similar varieties - found from great ocean depths, are many inches in thickness - this condition being necessary for them to withstand the very intensive pressure to which they are subjected under such great depths of water. In a similar manner, it is to be noted that at surface level we find Jellyfish and Anemones etc. with no bony structure at all. But such huge fish as the giant "SUN-FISH", which lives at great ocean depths has a strong skeleton structure and also a flesh comprised of a tough form of gristle in order to withstand the intensive water pressures at such great depths. For similar reasons, the Coral Insects cannot produce coral reefs at depths greater than 20 fathoms or 120 feet, because the water pressure is too great.

In the vegetable kingdom, it is a well established fact that our tallest trees are those which grow as saplings in closely crowded conditions, the tree having to grow strongly upwards to gain the sunlight which its neighbouring trees tend to block out.

Examples of such trees are the towering Eucalypts in the Cumberland Valley, and the towering REDWOOD PINES in California, U.S.A. where the tallest is 368 feet high, 13 feet in diameter, and estimated to be about 600 to 800 years old.

Birds which make use of the THIRD DIMENSION are the Gannett, which, from a great height above the sea can sight an innocent fish that would make a tasty meal, and by then diving head first, can develop enough momentum to penetrate below the sea's surface sufficiently far to catch his dinner. Similarly the sparrow-hawk goes well aloft to search, with its remarkable focussing eye, for a mouse or some similar titbit for its meal.

THE THIRD DIMENSION (Cont'd.)

Because of the lower density of the air at great elevations, Mountaineers have to do special training and carry special equipment such as oxygen supplies to scale the highest mountain peaks. Also our modern aircraft go up to very high altitudes to reach the rarer air layers in order to achieve supersonic speeds.

Turning now to Geology, it is recorded that in 1883, when the volcano KRAKATOA erupted violently in the East Indies, it blew a column of dust 20 miles up into the air. This became caught in very high level air currents and passed right around the world, causing the sunsets to appear in very red colouring. In somewhat similar manner, when serious and extensive bushfires have occurred recently in Australia, the intense heat has lifted smoke and fine ash particles to such a great height that they have drifted away as far as New Zealand.

Looking upwards at night we see the moon at some 240,000 miles above our heads, in addition to which there are about 3,000 stars also to be seen at very much greater distances still.

It is therefore apparent that there is a great wealth of Natural History to be studied if we only take time now and then to study matters in "THE THIRD DIMENSION", instead of always gazing around at ground level.

* * * * *

50 YEARS AGO - 1920

(Geelong Advertiser 26/9/70)

By Jack Wheeler

"The Geelong Field Naturalists Club adopted a resolution in favor of the formation of a parks and gardens trust.

"It was stated that the growth of Geelong and environs rendered necessary a wider policy regarding gardens and reserves. In the existing circumstances, and in view of the probability of extensive progress in building, it was feared that little provision would be made by the municipalities for the establishment and care of parks.'

How many of you noticed this? My attention was drawn to it by Mr. Pescott, Senr.

A SHORT WALK IN THE BARMAH FOREST

A party of four, Mr. & Mrs. F.D. Walter and Mr. & Mrs. H.C. Fallaw, recently spent an enjoyable week-end among the red gums of Barmah Forest; these notes were made by Mrs. Fallaw.

Reaching Rochester on Friday night, 20th August, we were standing by Barmah Lake early on Saturday morning. Large White Egrets stood in the shallow water, an Azure Kingfisher perched among the reeds, intermittently making swift sallies to and from the water three feet below, while Musk Duck and Large and Little Pied Cormorants were observed further away.

Driving through the forest a stop was made to look at huge gulls on the trees and unusual, sharply pointed nodules covering the trunks where the bark had fallen. Tree-creepers were numerous and the song of the Grey Thrush was beautiful. Driving further the track wound along the south bank of the Murray River where a stop was made for lunch. Three Black Snakes were seen here, so care was taken among the timber. Two Black Swans appeared on a bend of the river, a Nankeen Kestrel and a White-faced Heron flew overhead, and as we sat at lunch at Campbell's Landing the Pink Robin, Blue Wren, Willy Wagtail and both Yellow-tailed and Red-tailed Thornbills* were noted.

After lunch we set out on foot to walk into the forest and the parrots were numerous. The Red-backed Parrot, Eastern Rosella, Smoker Parrot and Yellow Rosella were observed, and with little change in the scenery from red gums and tussocky undergrowth, more time could be given to bird observing. This area is flooded thoroughly when the Murray overflows its banks, and debris is caught in the trees and grass for a considerable distance inland, while muddy lagoons are frequent.

Galahs and Sulphur-crested Cockatoos were heard and seen in the tree tops, while the Welcome Swallow darted near in a friendly manner. Magpies, Ravens, Currawongs and Mudlarks abounded, while the Straw-necked Ibis were prolific in the clearer areas. On one lagoon two Little Grebe were swimming, their tail feathers fluffed up in a delightful manner as they busily found their food among the water weed. One Swamp Hawk sailed overhead looking for his prey, which must have been difficult to find as we saw no animals all day, though their traces were visible occasionally.

A SHORT WALK IN THE BARMAH FOREST (Cont'd.)

Our track became so muddy that we turned back and enjoyed the sigh of several Peaceful Doves cooing in the smaller trees. Although there are practically no other trees than the red gum in the Barmah Forest, many saplings are growing up, and with the strange and beautiful shapes and markings of the old trees, the occasional wattle, the sunshine and blue sky that prevailed, the forest was indeed a wonderful experience.

We made our way home on Sunday after a last look at the forest fro the Southern side, in from Murray's Mill to Flanagan's Monument. The wide range of greys and greens of the magnificent red gums has left a lasting impression of serene beauty.

We journeyed back to Geelong via the old gold mining towns of Tarnagulla, Barker's Creek, Dunolly, and Maldon, all resplendent with wattle in full bloom, setting off the other more delicate spring blossom of almond and early plum.

(* Some authorities regard the Red-tailed Thornbill as an inland form of the Brown Thornbill. Hon. Editor)

* * * * *

WHERE LEARNING NATURALLY IS FUN

By Ted Errey

A group of Belmont children recently shared in a very interesting and exciting experience of bush living. Eighty boys and girls from Grades five and six at Roslyn Primary School spent one school week in October in the National Fitness Camp at Anglesea.

This camp has 24 acres, mainly of natural bush and heathland, with a sports oval and other games areas. A new recreation hall and a large dining hall also serve as indoor accommodation in wet weather. Other amenities include a shower, toilet and laundry block of concrete brick. Sleeping quarters are huts to hold eight children, in upper and lower bunks.

Activities for the week included Art and Craft, English, Bushcraft, Dramatics, Physical Education, Natural Science and Homecrafts, under the supervision of six members of the Roslyn staff.

The eighty children were divided into mixed teams of twenty for the purposes of lesson activities and the various camp duties. Each day began at 5.45a.m. for those interested in fishing in the river, at 7 for those on table duty for the day, or 7.20 for the remainder, and ended after supper and showers with "Lights out" at 9.15p.m.

Each day most of the four one-hour lessons were held out-of-doors. Some children would be at the beach making plaster casts in the sand, or studying the rocks and sea-creatures at low tide. Some would be in the bush doing compass reading, erecting tents, listening for birds or learning to recognise the many plants in bloom at the time. Others would play golf or tennis or take part in gymnastics. Over the week all groups completed the same program. Periods for rest and for free activities were an important part of the day, and cameras were freely used by many of the children.

To most of the campers the great display of wild flowers was a delight though some were not particularly interested in learning their names. Many quickly developed the "orchid eye", and were soon calling out "Here's another orchid!" even though it might be different in shape and color from those already met.

Although each group had only one hour and one two-hour session among the plants - and the longer period included a beach walk too - some enthusiasts learnt to recognise well over twenty species. Green-comb and Fleshy-lip Spiders were soon well known. Salmon and Dotted Sun

WHERE LEARNING NATURALLY IS FUN (Cont'd.)

Orchids were recognised even if the cool weather prevented them from opening fully. A late Nodding Greenhood was still in flower, and proved a great attraction.

Pink Fairies and Pink Fingers fascinated us, and required careful comparison to distinguish. Dainty Hare Orchids, growing quite close to one of the huts, were very easy, and the Beard Orchids also presented no problem.

Quite a few of the children already knew Sundews. Those who didn't were excited to see tiny insects caught on the sticky leaves. There was little difficulty in classifying these, for the Climbing Sundew was obviously too weak to stand by itself, and the Tall Sundews, many marked by a pink flower on top, clearly over-topped the ground-hugging types. Scented Sundews, with their yellow-green or reddish rosettes flat on the damp soil, were easy to see, but as their flowering season was over, the children had to take for granted the information that their large white flowers have a distinct perfume. Pygmy Sundews, however, clearly made sense, for they were almost too small to see. Magnifying glasses were of great value here, and, indeed, for close observation generally, they added much to the fascination of the outdoors.

Cup Moth caterpillars showed their stining spines very clearly under a small lens. The normally insignificant flowers of Dusty Miller and Cryptandra were brought into view, and the woolliness of Beard Heath really showed up with that assistance. Then there was the Pygmy or Tiny Violet, which was hard to recognise as such until the lens showed its typical violet form alongside the common ivy-leafed species.

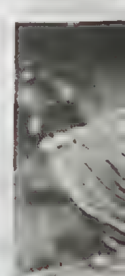
Goodenias and Guinea-flowers were much in evidence, but as the flowers are rather similar, some children found it difficult to remember which was which.

One yellow flower, however, they made no mistake with, and that was the South African Boneseed that is proving so troublesome in our coastal districts. Numerous small plants were unceremoniously pulled out, while quite large specimens could not survive the concerted attacks of several energetic boys.

Most children needed no introduction to the Silver Banksia. They had met some of its relatives in their school garden, and several

White-eared
Honeyeater (above)

Toadstools (right)



Silver Banksia (above)
Brown Thornbill (below)

UBJECTS

Nodding Greenhood

Photos by Trevor Pescott.

WHERE LEARNING NATURALLY IS FUN (Cont'd.)

are growing the Desert Banksia from seed.

Twining Fringe-lilies interested us because of their climbing habit, and because the fringe looked so beautiful under a lens. Chocolate Lilies attracted by their perfume, and Tetratheca or Black-eyed Susan was easily remembered because among our girls there were five "Susans".

Pea-shaped flowers were there in abundance and were easily recognised as such. The Running Postman was a favorite, already well known to many of the campers. But how to name the others? There are too many to lazily pass them all over as "Egg-and-bacon". Flat-peas were not difficult - their leaves are so distinctive with the sharp spines at the three corners, though the flat pods were not yet in evidence. One sharp-eyed youngster found the small yellow flowers of Globe-pea, and they were easy to separate, especially when we found some stems with the top flowers finished and the tiny green globular seed pods well developed.

But Bush-peas and Parrot-peas were a problem to us all. So many have no easily distinguished characteristic that we left them as "Bush or Parrot-pea" until wider experience and more detailed observation solve the problem for us.

The flower that held attention most closely was undoubtedly that of the Trigger-plant. This was new to the majority of the campers, and they watched fascinated as several individuals fired the triggers set specially to aid the plant's fertilisation processes.

For several reasons bird studies did not occupy as much of our time as we would have liked. To begin with, the cold windy conditions that we experienced for the first two days tended to keep birds in hiding. Then the Messmate Stringybarks, the predominant eucalypts of the area, were not in flower to attract nectar-seeking birds. And to add to this, a group of twenty lively ten- to twelve-year-olds is not the quietest party to escort along a bush track.

However, kookaburras, magpies, crimson rosellas, swallows and wattle-birds were seen, thrushes and pallid cuckoos called in the distance, and some of us did see at close hand an injured cormorant by the roadside. This was helped into the swamp, where it should at least be able to find food for itself.

WHERE LEARNING NATURALLY IS FUN (Cont'd.)

An early-morning excursion to the Golf Course to see the wallabies was not the success it had been at a similar camp the previous October. We found the area closed to the general public, and were told that the wallabies had been disturbed and did not visit the area as frequently as before. Fortunately one lone specimen was grazing quietly a short distance away, so our excursion was not entirely fruitless.

The weather warmed up as the week progressed and small skinks were often seen scuttling for cover in the undergrowth. The prize exhibit in this category was a Tree-dragon nine or ten inches long that dropped from a leaning tree on to John's head as he passed just underneath.

This, the second such camp arranged by Roslyn School was an undoubted success, and a most valuable experience to all who took part. In the near future it is hoped that Geelong schools will have their own camp site to be in use all the year round.

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SOME NOTES ON FALCONS

By Trevor Pescott

Strictly, the word falcon refers to the female of the species - a word derived from Latin, and meaning "sickle-shaped" (falcate); it could refer to the sharply-curved beak and claws, or perhaps to the curved and pointed wings.

The male is called Tiercel (or Tercel), this also originating from Latin and meaning "third"; the male is smaller than the female, and the word could refer to the male being a third of the falcon's size (actually nearer two-thirds). Another possibility is that it referred to the third egg - most species of falcons lay a brood of three eggs, on alternate days; incubation starts with the first egg, and consequently the young hatch two days apart, making the third four days younger than the first. As a result, it does not receive as much food as do the older nestlings, being less able

SOME NOTES ON FALCONS (Cont'd.)

because of its size to vie for food. Although it is smaller and weaker than the others, there is no evidence to suggest the third would invariably be a male.

Falcons (using the word generally) are fast flyers, and there is a claim that they can attain 175 m.p.h. in a "stoop", that is in a hunting dive; most falcons feed on other birds, which they knock down in flight, using their talons or perhaps a stroke from the wing, to drop their victims.

The name Falcon is given to all hawks of the genus Falco, these being characterised by their bullet-shaped, streamlined bodies, and curved, pointed wings. The Kestrel, although strictly a Falcon, feeds on mice, lizards and insects, which it catches by hovering above them, pouncing onto them when it is sure of a kill.

Two falcon species were used in Falconry, a sport popular in the middle centuries, and which lost favour only when other means of hunting became more popular; it was traditionally a "royal" sport, practiced mainly by noblemen who used Peregrine and Gyre falcons. The birds were trained to hunt and kill grouse, pheasants and ducks, and as such were protected as were the Kings deer and other regal game.

Even as far back as the year 1245, the Holy Roman Emperor Frederick II praised the birds and their art of hunting in a massive literary tome on Falconry.

Now however, the Peregrine (pronounced Perragrin) and most other Falcons are becoming rare, being persecuted because they take racing pigeons, and even more significantly because they are at the end of a food chain, becoming the victims of insecticide poisoning. Insects, affected by the poison, are eaten by quails, herons or other birds, and the poison accumulates in flesh tissue; when these birds are taken by falcons, the chemicals are transmitted to them, eventually killing them.

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"RAINBOWS"

By L.W. Elms

RAINBOWS are one of the rare items of our Natural History that can be seen quite plainly but cannot be handled.

Furthermore they can only be seen when the observer has his back to the sun, and it is not possible to walk round to the other side and view the back of the rainbow. The reason for this is that it is merely a break-down of white sunlight into its several components of different wavelengths, namely - Red, Orange, Yellow, Green, Blue, Indigo and Villet.

The rainbow which we see is due to the reflection of sunlight from the drops of water hanging in the atmosphere. As the sunlight passes through the raindrop it is reflected from the inside of the back of the raindrop, and is broken up into its various component parts. In other words - what was white light going into the raindrops, comes out as a band of several colours. Thus what we see in the rainbow is a natural spectrum of light which started its travel first of all from the sun which is 93 million miles away, and the light from it travels at a speed of 186,000 miles per second.

Under very humid conditions, sometimes a Double-Rainbow can be seen - that is one rainbow inside another. Other conditions of the humid atmosphere similar to rainbows are MIRAGES, where a road may appear to be passing through a sheet of water, whereas it is a perfectly dry road with a highly humid atmosphere above it.

Other mirages have been seen where a ship at sea, which is actually over the horizon and out of direct sight, can be sighted apparently floating up in the sky above the horizon level, this being the result of its reflection in the very humid atmosphere at that locality.

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SOME BIRD NOTES OF OCEAN GROVE NATURE RESERVE

By Roger Thomas, Ballarat.

From July 7th to July 12th, 1971, I was camped in the Ocean Grove Nature Reserve and so was able to gain first-hand knowledge of the birdlife of the area. During my stay there I added several species to the existing birdlist and also conducted a 'bird census' which gives an idea of the July bird population of the 200 acre Reserve.

On my arrival there I was shown around the area by Mr. Jack Wheeler who is Chairman of the Reserve's Committee of Management. We saw several interesting birds including Galahs, Swamp Harrier, Mountain Thrush, Fan-tailed Cuckoo, Horsfield Bronze-cuckoo and Dusky Wood-swallow. These last three species, usually associated with Spring and Summer, were seen almost every day.

During the morning of July 8th I conducted a census of the birdlife in the Reserve. This involved counting every bird seen or positively heard. The route followed was right around the edge of the Reserve (about 1-1/2 hours) and then along the 'Circle' and 'Nature Trail' tracks inside the Reserve (about 1 hour), thus covering the majority of the area.

The result was a total of 48 species and 498 individuals being recorded, several species being 'firsts' for the Reserve birdlist.

During the following day a single Wedge-tailed Eagle was seen flying near the Reserve and was presumed to be the last surviving of the two adults and single immature bird that frequented the area last Summer. Judging by its dark plumage this bird was thought to be an adult.

No nocturnal birds were seen or heard until after the Club excursion on July 10th when, just on dusk, a Boobook Owl called. This species was also heard the next night.

On the night of the excursion Mr. Trevor Pescott brought out twenty mammal traps which were set that and the following night but without result. While inspecting the traps on the Sunday morning, I was surprised to see six Blue-winged Parrots perched in dead trees in the centre of the Reserve and later a male was seen feeding on the track.

The next morning four Mountain Thrushes were observed at the "Cross-roads' in the centre of the Reserve. Although this species was not

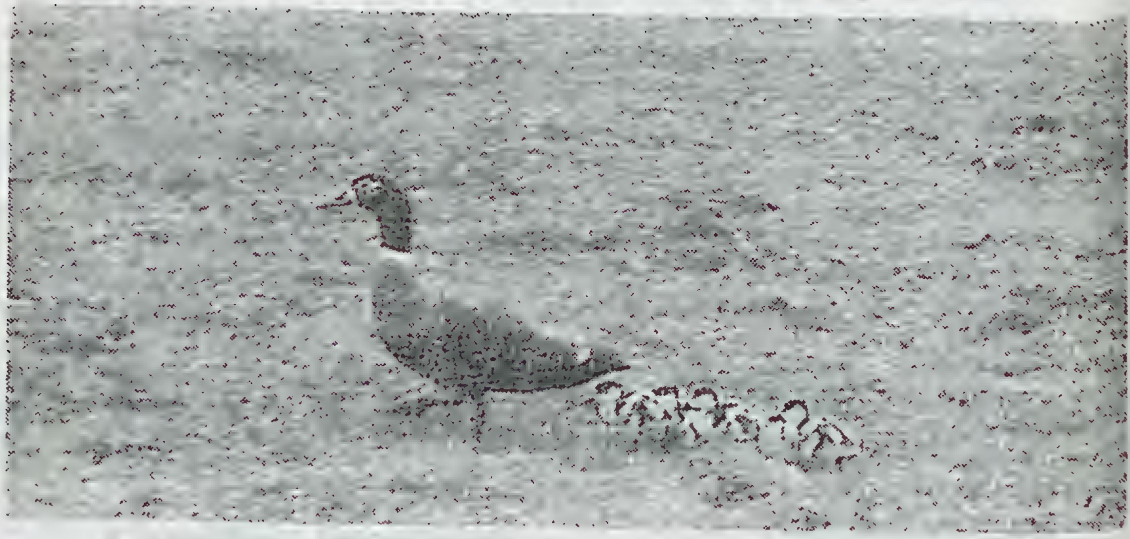
SOME BIRD NOTES OF OCEAN GROVE NATURE RESERVE (Cont'd.)

listed for the area prior to July 7, 1971, it is interesting to note that Sir Charles Belcher recorded them nesting "near Grub Lane on the Queenscliff road, on September 3rd 1892". This would not be far from the present Reserve.

Since the printing of the sheet of the Ocean Grove Nature Reserve several birds have been added to the list. Up to July 1971 the following had been added: Indian Turtle-dove, Little Falcon, Black Swan, Silver Gull, Little Pied Cormorant, Barn Owl, Eastern Shrike-tit, White-browed Scrub-wren, Spotted Pardalote, Mistletoebird and White-eared Honeyeater. During July 1971 the following were added: Brush Bronzewing, White Ibis, Swamp Harrier, Crimson Rosella, Blue-winged Parrot, Mountain Thrush, Little Thornbill, Striated Thornbill, Orange-winged Sittella, White-naped Honeyeater and Crescent Honeyeater, and several of the first group were seen.

The result of the 'Bird Census' is as follows:

Brush Bronzewing 1
Spur-winged Plover 2
White Ibis 72
Mountain Duck 3
Whistling Eagle 2
Brown Hawk 1
Galah 4
Crimson Rosella 4
Eastern Rosella 4
Kookaburra 3
Fan-tailed Cuckoo 2
Horsfield Bronze-cuckoo 2
Welcome Swallow 9
Grey Fantail 12
Scarlet Robin 7
Flame Robin 8
Pink Robin 3
Golden Whistler 3
Grey Thrush 7
Magpie-lark 4
White-fronted Chat 2
Little Thornbill 1
Brown Thornbill 37
Yellow-tailed Thornbill 5
White-browed Scrub-wren 5
Blue Wren 36
Dusky Wood-swallow 3
Orange-winged Sittella 2
White-throated Tree-creeper 3
Spotted Pardalote 3
Brown-headed Honeyeater 13
White-naped Honeyeater 7
Yellow-faced Honeyeater 18
White-eared Honeyeater 1
White-plumed Honeyeater 6
Yellow-winged Honeyeater 57
Crescent Honeyeater 1
Pipit 20
Skylark 5
Red-browed Finch 17
House Sparrow 20
Goldfinch 4
Greenfinch 4
Starling 32
Little Raven 24
Grey Currawong 6
Grey Butcher-bird 3
White-backed Magpie 10



Above: MOUNTAIN DUCK AND YOUNG - Photo by R.G. MacKenzie

Below: WHITE-PLUMED HONEYEATER - Photo by T.W. Pescott

SOME BIRD NOTES OF OCEAN GROVE NATURE RESERVE (Cont'd.)

Total of 48 species and 498 individuals.

During my stay at the Reserve I recorded 68 species, the most on one day being 52, recorded on two occasions.

In conclusion I urge all members to support their Club in the development of this wealthy area; for their part in making my stay there so enjoyable I would like to thank Mr. Jack Wheeler, who introduced me to the delightful area and allowed me to use his caravan during my stay, also Mr. Ron Lavery and all the people who attended the tree-planting on the Saturday afternoon.

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LIFE UNDER THE SEA

By Anon.

The sea, where life began, contains almost every main category of animal life - including mammals, the warm-blooded group to which man belongs. True fish are but a small section of the seas' community; whereas there are 20,000 known species of sea fish, there are 40,000 known species of millusc (the group which includes oysters, mussels, etc.).

In the sea, as on land, life depends largely on plants, and the plants of the ocean are almost as productive acre for acre as the plants on land. The pastures of the sea and the basis of its life cycle are countless myriads of free-floating, microscopic plants known as phytoplankton. These are the food of minute animals called zooplankton. Zooplankton are preyed upon by larger animal species, which themselves provide food for still bigger creatures. So continues the never-ending cycle, for the plants in their turn are nourished by minerals derived in part from the decay of marine organisms.

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"KOSCIUSKO NATIONAL PARK"

By L.W. Elms

An interesting area of mountainous country surrounding Australia's highest peak - Mt. Kosciusko (7,314 feet above sea level) - is soon to be renamed the "Kosciusko National Park". Its area is some 2,000 square miles, and it is at present known as Kosciusko State Park, having been permanently reserved by the New South Wales Government in 1944.

Since then the Snowy Mountains Authority has opened up the bush country with a good road system, and carried out an amazing amount of construction work on dams, tunnels and power stations etc. During their period of activity, the public has become aware of the excellent ski-grounds in the mountains, and it has now been developed as the most extensive theatre for snow sports in Australia, with numerous Chalets and ski-lifts etc. having been constructed.

The rock formations forming these mountains date back many millions of years, and they have survived the "Great Ice Age" with the grinding and tearing of its powerful glaciers. Small lakes over the mountainsides, and cleft rock masses are todays witnesses of that past age. These mountains are one of the oldest land surfaces in the world, and stood high and dry during the geological period when a vast area of the Australian continent was submerged under the sea.

Aboriginal tribes were the first human beings to roam through this area, but within some 30 years of the first white settlement at Port Jackson (1788), there were pioneer cattlemen who brought their cattle into these mountains. In 1834, John Bowerman found the Yarrangobilly Caves whilst mustering cattle.

It was in 1840 that the energetic Polish explorer and geologist, Count Paul Strzelecki, first climbed our highest peak and named it Mt. Kosciusko, because its shape reminded him of Kosciusko's tomb in Krakow. Subsequent explorers have named many other natural features in the mountains, one of which is "Mueller's Peak" after Baron Von Mueller. The first winter ascent of Mt. Kosciusko was made in August 1897, in which year a temporary meteorological station was set up there by Clement Wragge from Queensland.

At the present time, apart from the excellent work being done by the Snowy Mountains Authority, the Soil Conservation Service and

"KOSCIUSKO NATIONAL PARK" (Cont'd.)

the Bush Fire Prevention Authority are working to preserve the natural features of the area. So in years to come we can look forward to the quiet enjoyment of trees, birds and animals in the amazing mountains in the future "Kosciusko National Park".

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PARAPARAP

By Joyce Hunt

Paraparap is an interesting name. It consists of only three letters, repeated; and it is a palindrome.

For a hundred years our family has tried to find out the origin of the name of their home district. We had to go 2,000 miles to find out!

A suburb of Darwin is named PARAP; on some maps it is called PARAP PARAP or PARAPARAP. From the Town Clerk of Darwin and the Parap Primary School we have now learned that the aborigines thought the cry of the local Red-tailed Black-cockatoo sounded like P-RAP P-RAP, so the name evidently means Black Cockatoo.

But our Paraparap is 2,000 miles from the other one, and our Black Cockatoo is the yellow-tailed one, not the red-tailed. It would appear, then, that groups of aborigines, over two thousand miles apart, each interpreted the call of their respective species in a similar word.

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BOOK REVIEW

"ALLAN CUNNINGHAM - BOTANIST AND EXPLORER"

by W.G. McMinn

Published by Melbourne University Press, Carlton. Price $4.20.

This book is the first published biography of the botanist and explorer, Allan Cunningham. Its 22 pages of references, bibliography, and index, testify to the thoroughness of historical research by the author - a senior lecturer in History, at the University of Newcastle. More photographs and maps could well have further illustrated this 147-page book, but the gently analytical, and readable text, really needs no picture props.

Cunningham, born in England on 13 July 1791, began work as an assistant to Sir Joseph Banks in the Kew Gardens, in 1810 or 1811. For Kew, Cunningham collected plant specimens, both pressed and alive, first from Brazil; then in 1816 he sailed direct to Sydney, Australia, to continue botanical collecting in this relatively unknown, unexplored continent.

The biography reveals that Cunningham was a sensitive, physically frail man, yet he undertook wide and strenuous travel in order to fulfil his function in Australia. He travelled with Oxley and King, explorers of virgin country and coast; and Cunningham himself led expeditions into the NE of New South Wales, and SE of Queensland. In 1827, he discovered and named the Darling Downs, that fertile stretch of land in SE Queensland.

Eventually, McMinn relates, Cunningham became the enthusiastic superintendent of the Sydney Botanic Gardens in 1837, only to resign a short time before his death (partly from tuberculosis), on 27 June 1839.

Cunningham published Floras of New Zealand, and of Norfolk Island, and wrote papers on an amazing range of natural history subjects. Later botanists have used the surname of "the botanical traveller", as he described himself in several native plant species names, for example: Araucaria cunninghamii Hoop Pine, Casuarina cunninghamiana River She-oak, Pultenaea cunninghamii Grey Bush-pea.

As a glimpse into early Australian history, this book gives us a detailed picture of the doubts, the trials, and the theories of explorers plunging into the hinterland of a strange country. With generous quotations from Allan Cunningham's journal, and contemporary records, McMinn nicely augments this sensitive and fascinating biography.

Peter Fagg (August 2nd, 1971)

AT RANDOM

AN INTERESTING HOUR AT REEDY LAKE - by Jack Wheeler

During an hours observation at Reedy Lake backwaters near Whittington on 21st June 1971, the following facts of interest are worth recording.

Donning my gum-boots, I wandered across the slushy ground towards backwater which was at its highest for some time. I was surprised to flush eleven parrots of the Neophema group, and following them up and listening to their faint buzzing calls as they flew overhead I identified them as the Orange-bellied Parrot species, a group nowadays reasonably rare.

A group of white birds attracted my attention and approaching near enough to identify and count them, they were of three species, Yellow-billed Spoonbills (52), Royal Spoonbills (2), and White Egrets (11), the best concentration of Yellow-billed Spoonbills and White Egrets I can remember for some time.

Whilst observing this group, my attention was drawn to birds giving alarm calls from behind a group of lignum, three hundred yards to my left.

Moving over, I noticed three large rafts of Eastern Swamp Hens which I estimated to contain over two thousand birds. They were being constantly harrassed by a Swamp Harrier, and as it approached each time, birds screeched and scattered in all directions, then returned to tightly packed rafts or groups in shallow water. The attacks were repeated for the best part of 12 minutes, but on each attack the Harrier failed to collect a bird.

AT RANDOM (Cont'd.)

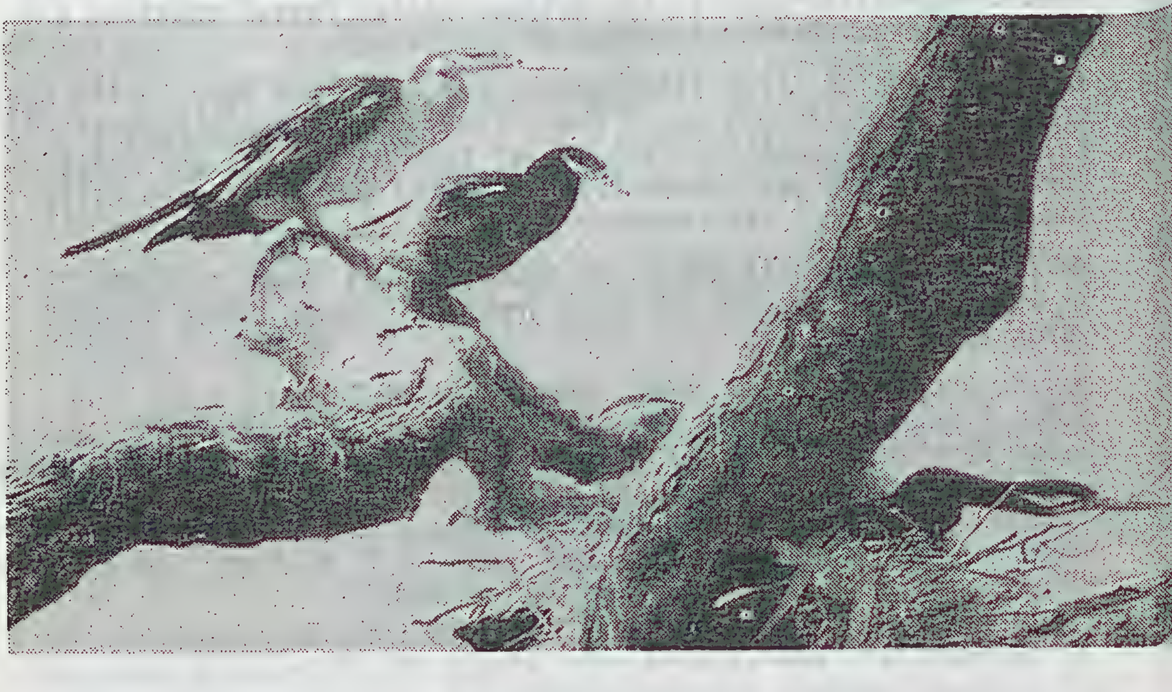
DARTERS RECORDED ON LAKE WENDOUREE BALLARAT -

by Jack Wheeler

It is many years since any Darter or Snake Bird had been recorded in the Ballarat district.

It was on May 2nd last that Roger Thomas of Ballarat identified a Darter as being on Lake Wendouree. A few days later, a second Darter was observed. The second bird, however, has not been seen now for some time, but a lone Darter has remained and by its plumage of dark grey above and white underparts, Roger is convinced the rmaining bird is a female. The other bird which remained for one and a half weeks lacked the facial stripe of the female and was evidently of immature plumage.

I myself, saw this remaining bird at Lake Wendouree recently on Tuesday 15th June. It was my first record of a Darter south of the Divide in this State.



DARTERS NESTING

Photo by Trevor Pescott

JUNIOR PAGES

EEL MIGRATION -

The life story of the common Short-finned Eel has been unravelled by biologists whose studies have involved not only research along the rivers and inland lakes, but investigation in the open oceans using boats set out as research laboratories.

We often find Eels in the Barwon and in lakes in this district, but little thought is given to why they occur there.

Eels hatch from eggs laid in the ocean a long way from land; the tiny, baby eels are wider and flatter than we would imagine they should be, and since they are almost transparent, they are called Glass Eels.

These little Eels take nearly two years to reach the coastline, and by this time are round and about the size of a pencil; still in shoals, the Elvers, as they are known, find the mouths of rivers, and swim upstream from the ocean to the fresh water.

Occasionally, as they swim up the river, they come to a weir or waterfall - such as Buckley's Falls near Queens Park - and then they must climb up the rocks, if they are to complete their journey.

Eventually, they find a section of the river, a waterhole, lake or dam; there they live and grow until they are adults.

Then it is time for the return journey, and the full grown Eels swim down to the ocean, and out to the spawning ground where they lay their eggs.

The migration back out to sea is not as spectacular as the upstream journey of the Elvers, but people who live in properties near the mouths of the rivers often see, in certain times of the year, numbers of eels swimming out of the rivers into the sea.

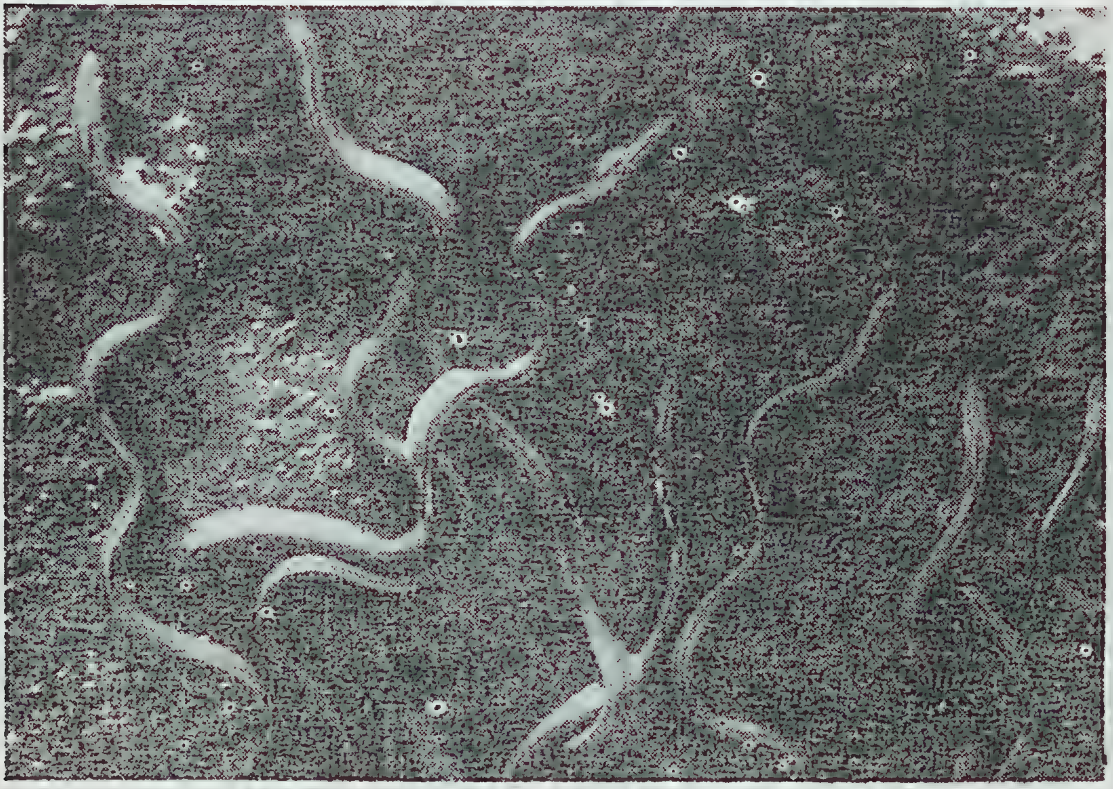
JUNIOR PAGES (Cont'd.)

Unlike most fish, Eels can survive out of water for some hours, provided they can keep wet; because of this, they can travel across the ground from one lake to another or from a weir to a waterhole.

Generally they travel overland at night or early in the morning when the grass is wet with dew, or during rainy weather.

If they become too dry, however, they will quickly die, so their overland journeys are very dangerous for them.

This is not their only hazard of course, for the eggs, Glass Eels, Elvers and maturing eels are all fair prey for other fish, birds, animals, and of course human beings; and drying out of waterholes and other places where they live is always a threat to them.



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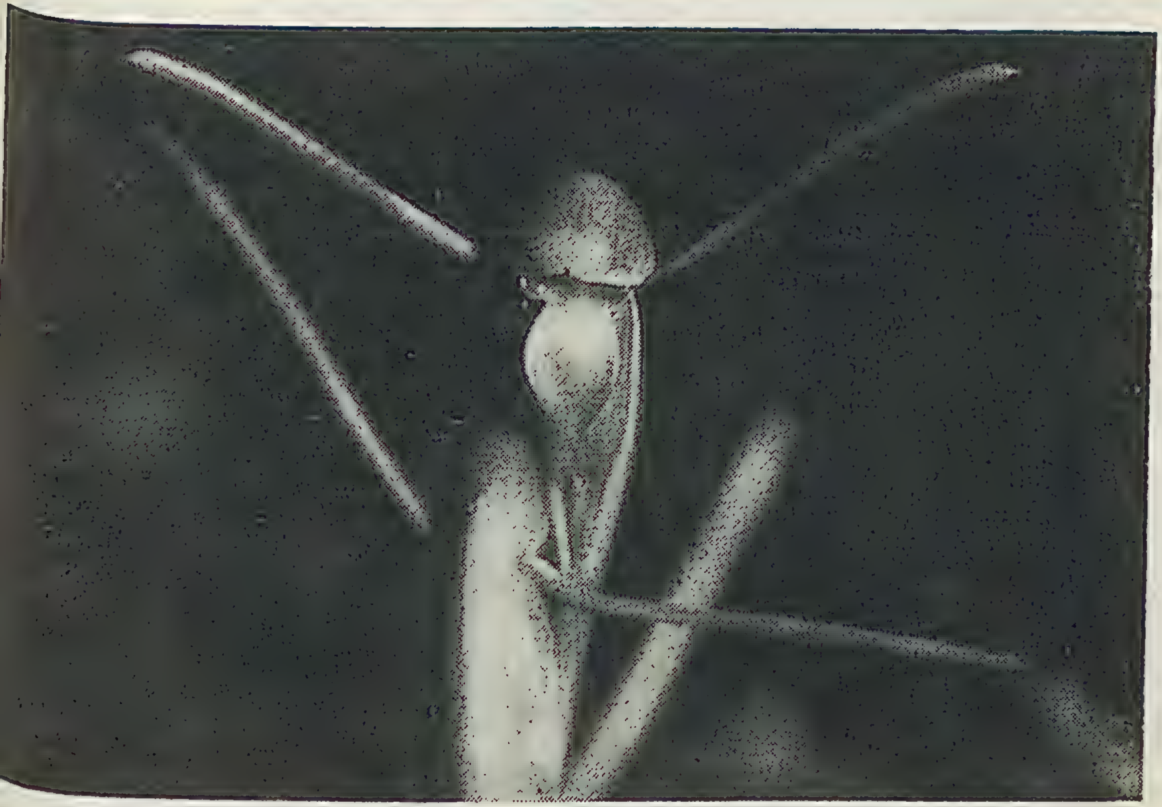

orned Orchids at Anglesea

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Hon. Editor: Trevor Pescott

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The Statements and the opinions contained in the papers published in this Journal are the responsibility of the respective authors.

MEMBERSHIP

Membership of the G.F.N.C. is open to any person interested in Natural History. The 'Geelong Naturalist' is distributed free to all members, and the Club's reference and lending library is available.

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COVER PHOTOGRAPH:

Horned Orchids at Anglesea.

By Trevor Pescott.

GEELONG NATURALIST

NATIONAL MUSEUM
28 MAR 1972
OF VICTORIA

EDITORIAL

Vol.8. No.3. November 1971

We are nearing the end of another year, and yet a check through the Treasurer's receipts shows that a large number of members are still unfinancial.

Costs are continuing to rise, so that unless fees are paid on time, our Club's finances are strained to the limit.

If you have overlooked the payment of your dues, your assistance would be greatly appreciated, to help us come into the new year with a solid Club bank balance.

* * *

The Nature Show held in October was a wonderful success, and full credit goes to the organisers and all who so willingly gave of their time and energy to put on the display.

We have not seen such an excellent display of this kind before in Geelong - even the famous 1905 Exhibition could not have been better.

Financially, we have been quite successful; but of even greater benefit is that of education and public relations.

The number of school children who visited the Show was huge - and if even only a few gain benefit from the Show, our efforts are well rewarded.

* * *

And finally - have you written an article, short note or observation for the 'Geelong Naturalist'?

We are still very, very short of material, both written and in black-and-white photographs.

TREVOR PESCOTT.

Hon. Editor.

FROM GEELONG TO THE FLINDERS RANGES

By Valda Dedman

A family trip, as opposed to a naturalist's tour or excursion, can nevertheless produce many experiences of a kind rewarding to anyone interested in natural history and the Australian countryside. Such a holiday was taken by our family in August 1971, when we set off - five children, caravan in tow, boat on car, heading from Geelong towards the Flinders Ranges. In this article I want to share with you some of the natural history aspects of this trip. Of course, to appreciate them fully we did have to stop and examine things in detail, and we found a pile of reference books a great aid to enjoyment. And always we were rewarded for the extra effort of looking a little closer.

Our first stop whenever we head north towards the desert is usually a spot on the Murray at the edge of the Kulkyne forest. This is one of the loveliest places I know, peaceful, remote and almost free from litter. The great river flows steadily along between steep tree-lined banks. The huge Red Gums (Eucalyptus camaldulensis), roots exposed at the water's edge, or standing magnificent on the flood plain, are the natural home for the parrots, cockatoos, tree martins, kookaburras and other birds which nest in holes, for the knarled limbs on these trees - surely the most beautiful of all our eucalypts - provide hundreds of convenient hollows.

The place is alive with birds. This year we recorded thirty-four different species (on another occasion forty-two). We were usually woken early by the Galahs, raucous but extremely beautiful in their soft grey and pink, and often comical when the "kissed and cuddled" on a high branch. The screeching White Cockatoos were often a nuisance on our bird walks, warning the whole forest of our presence. We noted several varieties of parrot, one of the commonest being the Regent Parrot, coral-billed and long tailed, the tail being black in the bright yellow male and greenish in the duller female. Then there were Yellow Rosellas, cool coloured blue and yellow, backs patterned with the black gules characteristic of the rosella family. Their tink-a-tink call was reminiscent of their cousins the Crimson Rosellas that visit my garden in autumn and winter to eat apples. The smaller Red-backed Parrots were plentiful, and in the late afternoon flocks of these

FROM GEELONG TO THE FLINDERS RANGES (Cont'd.)

liked to feed on the ground on a small plain on the other side of the river, eating the numerous grass seeds. They were very welcome to this diet; on any short walk through this area we collected hundreds of the wretched things in our clothing.

One of the commonest birds around the camp was the Brown Tree-creeper. These birds seemed to spend quite a lot of the time on the ground and became quite unafraid of the large and sometimes noisy humans. Old friends were around: Willy Wagtails, Grey Thrushes and "Greenie", the White-plumed Honeyeater which was by far the commonest honeyeater. Another of interest was the Blue-faced Honeyeater, which is seldom found far from water, and which gets its name from the bare patch of bright blue skin around the eye.

It was here that we heard (and saw) our first Pallid Cuckoos of the season. In fact they were quite common on the other side of the river, where I observed them feeding on caterpillars.

The river naturally attracted waterbirds, and those we saw included White-faced Herons, cormorants (which flew upstream, fishing, presumably following a school), ducks and a White-necked Heron. Welcome Swallows and Tree Martins were very plentiful, flying over and down to the water for insects, and scooping up mud from the bank, probably for nest building.

A pair of Whistling Kites soared across the river more than once, and the open short-grassed plains country away from the river was the home for flocks of Emus. We found their large three-toed footprints in the mud of a nearby waterhole. There were pigeons too; the Crested Pigeons whose irridescent bronze wings whistle in flight, and the Peaceful Dove, a small grey bird with a barred neck.

I always think of the birds first when I recall this camping place, but there were other things of interest too. In the late after-noon Kangaroos came out to feed in the grasslands, and if we looked carefully down among the grass we would find the clean round holes of "trapdoor" spiders, earthen lids open to the sunshine. If we closed one of these lids it was hard to find again, so neat was the fit.

Our camping spot was one most probably also enjoyed in former days

FROM GEELONG TO THE FLINDERS RANGES (Cont'd.)

by the aborigines, judging by the number of "canoe" trees in the area. We noticed that the bark of the red gums was never used for canoes, shields, coolamons and the like. Always the box trees were selected, and along the edge of an overflow of Chalka Creek nearly every box tree bore a scar, large or small, but never once did we see a red gum so marked, although the latter were by far the most common variety.

. . . .

On any trip in this direction we try to spend at least one night at the caravan park at Wentworth. It is a delightful spot, right on the edge of the Darling, almost at the junction of this river with the Murray. It was just about here that Captain Charles Sturt camped on 21st January, 1830, on his journey of exploration in a whaleboat down the Murrumbidgee and Murray to Lake Alexandrina. The chief reason for our visit is the tame Brushtailed Possums. As darkness falls they come down out of the trees to be fed bread and honey by our delighted children. Often mother will have baby on her back when she comes down to feed; sometimes she leaves baby aloft and takes up a tidbit to him. The possums are dreadfully spoiled by the tourists and not at all camera shy. They have enormous appetites and we often find supplies running low, for the feeding goes on for a couple of hours till the children (and adults) finally tire or are sent to bed.

. . . .

Our first real "desert" stop was to be Broken Hill. The Silver City highway from Wentworth is extremely good, and the journey fast and often rather dull, apart from the crossing of the Anabranch. But not so this year. The best rains for eleven years had preceded us and the desert was in flower. Drifts of everlasting daisies, sometimes white, sometimes golden, brightened the landscape. When we stopped to investigate more closely we found many other plants in bloom. These included Shrubby Bluebush (Kochia pyramidata) and Rosy Bluebush (K. erioclada) with fruiting "wings" of yellowish-green or rose; Ruby Saltbush (Enchylaena tomentosa), a grey-green fleshy plant gay with red and orange "berries", which are really the enlarged perianths of the flower.

FROM GEELONG TO THE FLINDERS RANGES (Cont'd.)

Sturt made use of this plant to prevent scurvy during his trek to the interior in 1844-46. There was Flannel Cudweed (Actinobole uliginosum), hugging the ground with its woolly flower heads, and Blue Heron's-bill (Erodium crinitum), named for its long fruiting "beak". We also saw our first patches of Sturt's Desert Pea (Clianthus formosus), the most spectacular of all by virtue of the size and brightness of the flowers. The plant cover was not as thick as the view from the road might have led one to suppose; patches of bare red earth showed between the individual plants. There was no overall grass cover such as you would find beneath an equally spectacular patch of buttercups in alpine regions, for instance.

If the flowers were a delight, so were the birds. Cockatiels (Nymphicus hollandicus) flew over constantly, dark grey bodies and white wing patches making them easily identifiable. They were always flying north. Were they migrating in response to good feed conditions? A Brown Songlark (Cinclorhamphus cruralis) soared skywards and descended slowly, singing all the while. White winged Trillers (Lalage tricolor) were common, as were young or female Red-capped Robins (Petroica goodenovii). A familiar chittering sent me looking in the gidgee bushes for a wren. I was not disappointed. A male Black-backed Wren (Malurus melanotus) obligingly appeared. "Blue" wrens are always lovely. The colour of their feathers has an enamelled jewel-like quality. The Black-backed Wren gives one an overall impression of shining blueness - dark blue and light blue, breast divided by a black band. It lacks the dark breast of the more familiar Blue Wren of the south (Malurus cyaneus), although as its name suggests, the nape, upper back and rump are black.

But the most fascinating of the birds I encountered at this stop was the Crested Bellbird (Oreoica gutturalis). I heard him long before I tracked him down, and until I knew better I thought he was always flying towards me. To see the Crested Bellbird sing gave me an uncanny sensation. As he began I could have sworn he was fifty yards away, so quiet and distant was the song, but I could see him clearly, perched on a branch not six feet away; the base of the tree hidden in a sea of golden everlasting daisies. At the subdued start of the song his beak was almost closed, giving a ventriloquist effect, but as the song rose in a glorious crescendo,

FROM GEELONG TO THE FLINDERS RANGES (Cont'd.)

he opened his beak wider and wider and thrust his head further and further back, giving full vent to his joy of life. He had several variations of tune, and all began softly and gradually rose in volume. I had heard the song before on a recording and had wondered why such a long excerpt was included. Now I understood. Those responsible for taping his song were completely enthralled, as I was. The Crested Bellbird is an attractive bird. The overall colour is a clear grey; the crest (mostly not erect when I saw it) is black, the face and throat white, surrounded by a deep collar or bib of black.

. . . .

From Broken Hill to the Flinders our journey was "cross country", that is to say we did not take the usual tourist route, but went instead through outback stations such as Kalabity and Curnamona. The right road was not always easy to find; often the station tracks are in better condition than the main "road", which is often only a narrow sandy track. The way was officially sign-posted, but on more than one occasion we found the posts flat on their faces on the ground and the pointers therefore useless. Even with a station "map" we took the wrong turning and had to ask the way. And we weren't the only ones! We learned later that this was part of the London - Sydney Marathon car trial route; and we had accomplished it towing a caravan. Yet, even with these hazards, I would not willingly have missed this section of our journey. I always find the desert country varied and fascinating, and in this good season the country was particularly attractive.

Often we brushed past Emu bushes, with delicate trumpet-like flowers of orange or mauve. The latin name of this plant "Eremophila" means "drought-lover" and the vernacular name comes from the emu's love of the dark purplish plum-like fruits of Eremophila longifolia; the Berrigan or Native Plum tree.

We spent the night by a dry sandy watercourse lined with Gidgee trees (Acacia cambagei). Our campfire was of dead Gidgee wood, slow growing and dense grained and providing good heat. The night was cold and starry and next morning the clear air was filled with the song of the Wedgebill (Sphenostoma cristatum). These brown, crested birds would perch at the very top of a Gidgee bush and

FROM GEELONG TO THE FLINDERS RANGES (Cont'd.)

repeat over and over their short and loud call. I was lucky enough to see one on its nest, well camouflaged about four feet above the ground in a dead Gidgee. The nest was a rather shallow cup, four or five inches across, made of fine twigs and thinly lined with something soft. Inside were two blue-green eggs, about 3/4 inch long, blotched with black at one end. The bird frequently left its nest to sing its little song, beginning very softly just as the Crested Bellbird had done, then bringing it to a loud climax. It had not the same range nor attractiveness of call as the bell-bird. Sometimes it would forage on the ground for food, frequently spreading its white-tipped tail. Wedgebills are said to breed in response to good seasons.

The Gidgee bushes often contained the bag-like nest of Processionary caterpillars, and were frequently parasitised by a type of mistletoe. It was not surprising, then, that Mistletoe birds (Dicaeum hirundinaceum) were often seen. These are very small birds (3.5 inches), the female plain brown but for a pale scarlet patch under the tail, her mate much more handsome, with blue-black head and bright scarlet on the throat and under the tail. It was easy to see how the mistletoe had become so prevalent. It was flowering and the sticky seeds were often seen on the gidgee branches. These had passed right through the bird's simple tube shaped stomach or gizzard.

Artemora Hut on a tributary of Wilpena Creek was our next over-night stopping point. The hut, with its thatched horse yard, wire-enclosed meat room, and winch for lifting carcasses for butchering, seemed very old. It is now unoccupied, but is provided with wire stretchers and a large meat safe. The mantlepiece above the stove has an effective if rather off-beat decor of skulls, ram's horns and old kerosene lanterns.

Next morning we walked to the main creek, which was flowing well at this time. It is lined in places with great Red Gums worthy of a Hans Heysen painting. There were several large permanent waterholes, superb places of dark green water forty or fifty yards long. What a boon these waterholes must have been in this arid country to the aborigines and the early explorers! Wilpena Creek, like all the streams in this region, rises in the Flinders Ranges and, the reverse of "normal" streams of wetter areas, gradually

ARTEMORA HUT

WATERHOLE AT ARTEMORA

photos by Valda Dedman.

FROM GEELONG TO THE FLINDERS RANGES (Cont'd.)

peters out on the plains near Lake Frome. It only reaches its destination in exceptional seasons. Among the birds we noticed on our walk were Duck, Budgerigars, Grey Fantails, Black-faced Cuckoo-shrike, Red-capped Robins including a male in full adult plumage, and a solitary Black-fronted Dotterel, feeding at the edge of a shallow pool.

But to continue our journey. Our destination was Arkaroola, in the North Flinders. The road was good (that is well-defined) but for numerous steep-sided creek crossings. The creek beds were generally dry, stony and lined with Red Gums. At times the countryside was dull red with wild hops in flower, extending right up the mountain-sides. There were plenty of other flowers, too, especially if one stopped and looked. In the Wertaloona area Sturt's Desert Pea was growing most luxuriantly. Each plant covered a circle several feet in diameter, flowers glowing brilliantly in the sunshine. One plant we found was variegated; the top half of the long pea flower was red and the bottom half white margined deep red.

For much of the way we were travelling on the plains just east of the ranges, so we had mountains on our left and a flat expanse looking out towards Lake Frome on our right. Once we climbed an isolated rocky hill, in the side of which was a strange single sand dune. What had caused this solitary formation? From the top of the hill we could look down over the flat plains, featureless but for the treelined creeks meandering across them. In the distance was Lake Frome, on this occasion filled with water, quite clearly visible through the binoculars. As we clambered among the rocks we disturbed several sure-footed kangaroos, but generally we saw few animals, despite the good season.

. . . .

And finally, Arkaroola, old and dry. The camping ground is on a small plateau surrounded by steep, bare hills of orange rock. Arkaroola is in fact a sheep station, and also a very civilised tourist centre catering for wealthy American tourists. We were pleased to wash off some of the desert dust and stock up on provisions, but our main interest was in getting the "feel" of the countryside.

We spent an afternoon on the tortuous track to Paralana Hot Springs,

FROM GEELONG TO THE FLINDERS RANGES (Cont'd.)

which had been given a great write-up in the tourist brochures as the "Last vestige of vulcanism in Australia" etc. etc. The journey was slow and hazardous, though not without interest. One of the loveliest spots was Stubbs' Waterhole, a place of orange cliffs overlooking a deep green pool, but the springs themselves were a terrible let-down. We walked past the hot pool at first; only by testing the temperature of the water up and downstream did we find the spring, a small pool of warm water, up through which a few languid bubbles burst from time to time. The water was just pleasantly warm, although you could not plunge your hand into the sand at the edge for long without beginning to feel cooked.

We wondered if the original springs were somewhat spoiled by an attempt in the 1920s to develop a health resort in the area. We saw traces of pipeline and other installations. At any rate the aborigines had a pleasing legend to explain the hot water. According to them, "Two young aboriginal warriors fought over the attentions of a beautiful aboriginal maid at the springs. As they silently fought with fire sticks their shuffling feet gouged out the basin into which seeped the cold waters. The basin was edged with the boulders which they pushed aside by their heaving, struggling bodies. Finally, having killed the warrior with his fire stick, the victor plunged it into the pool, creating the bubbling hot springs." Only a couple of weeks before we were there, the boys of an Adelaide school had erected a cairn at Paralana with the legend inscribed on it. This shows a concern for the preservation of the area and it is to be hoped enthusiastic sightseers do not deface it with their initials and such like.

We were lucky to take a Gránd Ridge Tour in an open four wheel drive vehicle, a most exhilirating trip over rough tracks which seemed at times almost vertical. The North Flinders are highly mineralised and have been intensely prospected. From time to time we were faced with notices telling us of the rich uranium deposits proved in the area. Personally, I hope it is never an economic proposition to remove the minerals. Already some parts are in danger, since they are so cut about with roads made for the mining engineers. The area seemed ripe for erosion, for the rain in these parts, though infrequent, is often heavy. Let us hope, too, that the rockhounds are not overenthusiastic. It is just too easy to

FROM GEELONG TO THE FLINDERS RANGES (Cont'd.)

make good finds. You just have to restrain yourself. As tourists we stopped a few times, and from just beside the road picked up jasper, agate, crystal quartz and uranium ore (torbernite). Near the top of the ridge, too, we noticed several wild goats. These probably have a detrimental effect on the vegetation.

The views were spectacular. All around were mountains, the bare bones of the earth, orange close at hand, blue in the distance. There were spectacular rock formations, arches, caves, layers tilted at crazy angles. The permanent creeks and waterholes were particularly lovely, partly because there were so few of them. Vegetation was sparse, and varied with altitude. As we went higher Spinifex grass (Triodia irritans) became more prevalent, (what prickly stuff it is, too!), and also a type of Grass-tree (Xanthorrhoea sp.). This had a much more slender flower spike or "kangaroo tail" than the X. australis with which we of the Geelong district are so familiar.

. . . .

After Arkaroola, Wilpena seemed much gentler, although the mountains themselves are in some ways more spectacular. Wilpena has a flavour all its own. The countryside through which the road passes is open, sometimes cleared farmland, sometimes a parklike forest of Native Pines (Callitris sp.). The nearer slopes are rounded, and when we saw them, just after heavy rain, green with grass cover, but beyond are always the mountains, red, orange or blue depending on the sunlight. The paddocks themselves are sometimes crossed by sharp ridges of resistant rock, which stick out of the earth like walls or rows of bones.

The Flinders Ranges generally are composed of ancient sedimentary rocks laid down in a great trough, the Adelaide geosyncline. Some 500 years ago this wedge of sediment was compressed so that the strata suffered gentle folding and considerable faulting. Although the area is such an arid one, streams and moisture have been the principal agents in shaping the landscape, cutting through the cracks and weaknesses and laying bare the tilted and folded layers of rock so that today we may marvel at such places as Brachina Gorge or Wilpena Pound.

FROM GEELONG TO THE FLINDERS RANGES (Cont'd.)

The road through Brachina Gorge winds along the creek bed, crossing and recrossing at natural fords, in a narrow valley where walls, orange in the morning sun and pink in the afternoon, tower above you. In some places the strata is tilted almost vertically, in others huge caves have been eroded out. The stream is a lovely one, running sweet and clear, but not many miles distant it is lost in the sandhills on the way to Lake Torrens.

The Pound itself is as remarkable as the tourist brochures make out. It is a huge oval amphitheatre whose rim is composed of extremely hard sandstone up to 9000 feet thick. The floor is open parkland, and dotted with Native Pines, and Red Gums along the creeks. The only real entrance to the Pound is along Wilpena Creek, that same stream we encountered near Artemora.

Wilpena at that time of the year was overridden with tourists, and we preferred, as did many others, to spend the night in the forest outside the camping ground. Here among the trees we could have a blazing fire of aromatic cypress pine logs. The fire was a necessary luxury as the temperature dropped to below freezing at night.

And so eventually our holiday came to an end. What I have told you is not the whole story by any means. We had all the fun of boating, climbing, camping, sharing awkward experiences with others temporarily "lost" in the desert. But the events and impressions I have described were an integral part of our trip, and I think we and our children gained an awareness of, and often a love for, the natural environment generally, and most particularly for this arid and sometimes inhospitable part of Australia, as well as the creatures and plants and the very rocks which make it what it is.

. . . .

Birds recorded in the Hattah-Kulkyne area:

Galah	Eolophus roseicapillus
White Cockatoo	Cacatua galerita
Red-rumped Parrot	Psephotus haematonotus
Regent Parrot	Polytelis anthopeplus
Yellow Rosella	Platycercus flaveolus
Whistling Kite	Haliastur sphenurus

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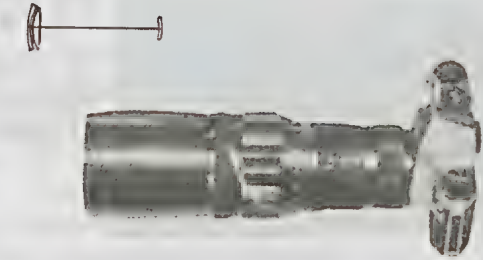

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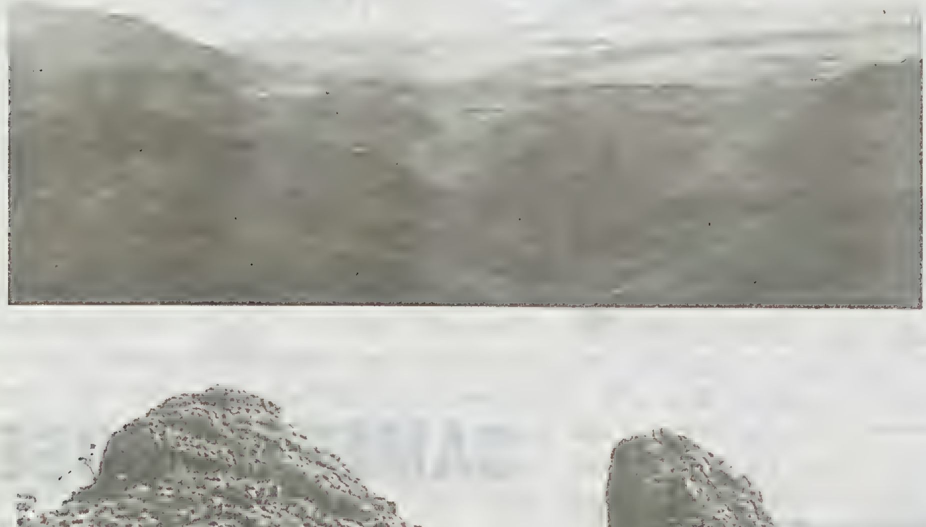
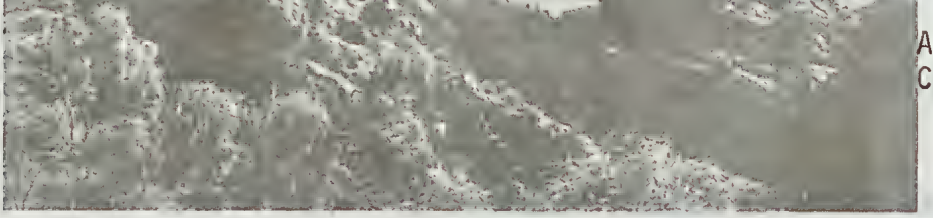
Looking back towards Arkaroola



View over the plains from Mt. Painter towards Arkaroola



Arkaroola Country

photos by V. Dedman

FROM GEELONG TO THE FLINDERS RANGES (Cont'd.)

White-winged Chough	Corcorax melanorhamphus
White-plumed Honeyeater	Meliphaga penicillata
Blue-faced Honeyeater	Entomyzon cyanotis
Grey Thrush	Colluricinda harmonica
Eastern Whiteface	Aphelocephala leucopsis
Willy Wagtail	Rhipidura leucophrys
Brown Treecreeper	Climacteris picumnus
Kookaburra	Dacelo gigas
White-necked Heron	Ardea pacifica
White-faced Heron	Ardea novaehollandiae
Welcome Swallow	Hirundo neoxena
Tree Martin	Hylochelidon nigricans
Mudlark	Grallina cyanoleuca
Black-faced Cuckoo-shrike	Coracina novaehollandiae
Peaceful Dove	Geopelia striata
Crested Pigeon	Ocyphaps lophotes
Raven	Corvus coronoides
Pallid Cuckoo	Cuculus pallidus
Noisy Miner	Myzantha Melanocephala
Black-backed Magpie	Gymnorhina tibicen
Yellow-tailed Thornbill	Acanthiza chrysorrhoa
Brown Thornbill	Acanthiza pusilla
Emu	Dromaius novaehollandiae
Dusky Woodswallow	Artamus cyanopterus
Mallee Fringeneck Parrot	Barbardius barnardi
Boobook Owl	Ninox novaeseelandiae
Pied Cormorant	Phalacrocorax varius
Duck	species uncertain

* * * * * * *

PHOTOFLORA '72 -

Geelong screening is planned for Wednesday, March 15th, at McPhillimy Hall (St. George's Church), Latrobe Terrace.

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SHOWY HYACINTH ORCHID AND SYMBIOSIS

By Jack Wheeler

The present seasonal flowering of the attractive Hyacinth Orchid, (Dipodium punctatum), is the best for many years and excellent blooms are at their best in some of the poorest bushland in the foothills of the Otways around Bambra.

The tall brown stems, often three feet tall, become laden with attractive flowers which last for quite some weeks, and being leafless, one wonders how it can survive without this source of food supply so necessary in other forms of plant life.

Botanists have come up with the answer in that it has a "symbiosis" association with an underground fungus, and this overcomes its necessity for exterior foliage or leaves.

The tuberous root system of the Hyacinth Orchid is such that it will only survive where a particular underground fungus exists, but the question here arises as to how the seeds of this plant become associated with the fungus spores when they are subterranean.

Following each flowering this orchid develops large pea-sized seed capsules which at maturity are full of dust-like seed, and it could be that the spores of the particular fungus

HYACINTH ORCHID
photo by Stella Bedggood.

SHOWY HYACINTH ORCHID AND SYMBIOSIS (Cont'd.)

it associates with is dispersed with these fine seeds.

Symbiosis is a scientific word which means that there is an association between two different species which is of benefit to both and could be described as the opposite to parasitism where one takes but does not give, the most common example of this being the various forms of mistletoe.

So we can clssify the hyacinth orchid as a subterranean plant which would never have any need to show itself above the surface of the ground but for the fact that reproduction of its kind is very necessary and this can only be done by an external flower which in turn provides pods of seed.

Most of our Victorian flowers of this orchid are heavily spotted and a rich shade of pink, but I have seen similar flowers in south-east New South Wales, a rich yellow and they also are heavily spotted.

* * * * * * *

One interesting project currently sponsored by the Australian Museum in Sydney is a programme of tagging the Wanderer or Monarch butterflies.

These are quite extraordinary migrants and nomads, and in America there is a well mapped migration route North and South on the West coast. Successive generations of Wanderers undertake the flight, the instinct to travel being an inherant characteristic of the newly hatched butterfly.

Any butterfly found tagged; if dead, should be sent to the Australian Museum; if the tagged insect is alive and well, record the number and send this.

In both cases, do not forget to include the locality and date of the find.

* * * * * * *

FROGMOUTH FAMILY AT MARYBOROUGH

By Trevor Pescott

The Tawny Frogmouth is one of our more interesting birds, a nocturnal species quite common in the Geelong district. During the day it perches along a branch of a tree where its rigid pose and mottled plumage afford an excellent camouflage.

Frogmouths are more closely allied to the nightjar family, most of which rely on camouflage to escape detection. All feed extensively on insects, and the Frogmouth obtains most of its food off the ground.

Despite the wide gape, Frogmouths rarely capture flying food and beetles, spiders and other terrestrial creatures are the basic diet.

Although the gape is quite expansive, the beak itself is short and wide, and the youngsters in particular appear to have very small beaks.

The name Frogmouth, of course, is derived from this very wide gape.

Three years ago, Mr. C. Tingate found the family of Frogmouths, pictured, perched in a tree near Maryborough. We had gone to bushland near that town to search for birds, and the finding of this family was the day's highlight.

We were able to walk quite close and their only reaction was the pose of the birds became more rigid the nearer we approached.

It was interesting to note how one youngster "adopted" each parent, leaning against the old bird, trusting, it seemed, in the experience of the parent to hide it.

The nest is a flat platform of sticks built in a fork of a tree, and quite often in the open. The nest is quite small in comparison with the bird, and again the main defence seems to be in the adult's camoulfage as she broods the eggs or nestlings.

At night when the birds become fully active, bluff is used, and any intruder near the Frogmouth's nest will be faced with an apparently ferocious bird, feathers fluffed up, eyes and mouth wide open, and wings upraised.

The call of the Frogmouth is a series of resonant booming notes -

FAMILY OF FROGMOUTHS

photo by Trevor Pescott

FROGMOUTH FAMILY AT MARYBOROUGH (Cont'd.)

"Oom, oom, oom" - repeated perhaps eight or ten times. Heard at a distance they have a soft tone, like the calls of many nocturnal birds, but at close range they are quite explosive and penetrating.

Many years ago a Frogmouth began calling from a tree under which I was camped, and the depth of the notes was quite astonishing.

One week-end when I drove with my family to Horsham, prior to establishing a week's camp in the Little Desert, the last fifty miles was travelled in darkness, and one bird noted along the roadside was a Frogmouth.

They use the roads as a source of food, picking up moths and other insects hit by passing cars. Unfortunately the Frogmouths themselves become the victims when dazzled by approaching car lights.

Frogmouths are not owl, despite their nocturnal habits, and are not responsible for the "Mopoke" call which is made by the Boobook Owl.

But the misnomers of "Frogmouth Owl" or "Mopoke" are still given occasionally to the bird.

The reason for the "Mopoke" error is quite obvious. The call is a familiar sound to both city and country dwellers alike, but the bird which makes the call, the Boobook Owl, is more secretive in its daytime slumbers than the Frogmouth.

So the Boobook's call is heard, the Frogmouth is seen the following day, and the association is immediately made.

* * * * * *

Geelong Field Naturalists Club meets at McPhillimy Hall, St. George's Church, Latrobe Terrace, each first Tuesday in the month, January excepted.

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STRANGE NESTING OF SPUR-WINGED PLOVER

By Jack Wheeler

Mr. Ivan Tiley of Beaufort recently wrote to me and I quote - "Spur-winged Plovers nest in some odd places and it is not unusual to find them nesting within a few feet of a roadway, or even in the back yard. Their more natural nesting place is in an open paddock, often near water; but recently I found a pair nesting in a disused Black Swan's nest in water at least 15 inches deep, with clear water to the nearest weed thirty feet away, and the nearest dry land a good one hundred yards away.

The nest was first noticed on 19th September and contained 4 eggs. A week later the eggs were still intact but on 28th September the nest was empty with not a sign of egg shells, parents or chicks. So ends another of Mother Nature's little oddities and the mystery remains - had the chicks hatched and if so, could they wade ashore at their early stage of development, or as often happens, a predator may have taken either the eggs or chicks?".

This is rather an interesting situation - could the chicks, having hatched, make it safely to dry land? Plover chicks, once hatched usually leave the nest area but in this case they had, upon hatching been forced to remain in the immediate nest vicinity for two or three days and the parents would know when they were strong enough to cope with deep water, and I really think that they could. Their thick down would protect them from becoming waterlogged and it is quite likely they could swim when only two or three days old.

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If you have any ideas for excursions, weekend camps, guest speakers, etc., please contact the Honorary Secretary - they may well be incorporated on next years program.

* * * * * * *

GREY FANTAILS BREEDING IN SUBURBAN GARDEN

By Jack Wheeler

When it comes to breeding, birds become very conscious of food supply which must be in sufficient supply to rear their brood, but they also become particularly conscious of safety and predation to such an extent that they will often accept human company, rather than that of their own kind.

In the family of flycatchers, one such species, the Willie Wagtail, is an adept of this, and will nest in a home garden often quite close to where humans frequent, and do this year after year. The Welcome Swallow is another species which shows a great preference for breeding under verandahs and on window frames close to where humans go about their daily chores.

I am sure that if a survey of this nature was carried out, the percentage of successful breeding within home gardens and buildings would be far greater than that in natural habitat away from man's proximity.

However, all home garden nesting is not a path of roses, as this story relates.

I received in the mail recently a very interesting letter from Mr. John Coutts of Staffort Crescent, Ballarat. Mr. coutts writes: "I have a pair of fantails nesting for the second time this year in a catoniasta bush, two feet outside our dining room window. The following information could prove useful - first nesting movements was noticed on 6th October. Nest was built entirely of cobwebs, both birds helping in construction of a nest the size of a sherry glass. Time to build the nest was 3 weeks, and the three eggs took 20 days to hatch.

"During the high winds and rains of November, both parents sat on the nest together to keep the chicks in. My opinion was that the nest was far too small for the three babies it supported.

"As a result of one violent storm, two young ones were blown out one night and were found dead under the bush next morning. They were then at the pin-feather stage. At this stage the parents were feeding the chicks mainly blowflies but also other insects.

GREY FANTAILS BREEDING IN SUBURBAN GARDEN (Cont'd.)

"The one survivor was successfully reared and remained with the parents in the vicinity of the nest for two weeks. The youngster was chased away and the parents set about adding about half an inch of fresh material to the top of the nest and began nesting for a second time.

"At the moment of writing the second lot of chicks are out and again being fed by both birds.

"They defend their area with great courage from silvereyes and goldfinches and even attacking blackbirds. When our dog strays nearby for too long, they will dive on him continuously, chattering with a scissor like sound made with the beak and not from the throat.

"The second clutch is having a much more peaceful weather ride at this stage."

This fantail is known as the Grey Fantail (Rhipidura flabellifera) and has a distribution throughout Australia generally and may be seen in all States including Tasmania. Outside Australia it is known in New Zealand, New Caladonia and New Hebredes.

It is a very inquisitive and trusting bird as Mr. Coutts states, and like the Willie Wagtail has plenty of confidence when protecting its own breeding territory.

I agree with Mr. Coutts in that the size of the nest in which they endeavour to raise three babies is far too small for comfort but this is the size defined by 'Mother Nature' and the dozens of nests I have examined throughout Australia, none would vary in diameter any more than an eighth of an inch, yet under good conditions, it amazes me how often they do successfully raise a full family of three, or on rare occasions even four.

Of interest also is that the nest Mr. loutts describes has no stem or tail suspended from the bottom of the nest. Most nests I have observed have had some sort of tail, in some cases quite a feature. However, Mr. Coutts has intimated that some hairs or webs were dangling from the bottom of this nest, at first but were later woven into the body of the nest. The purpose of this tail has always puzzled me as many other species, with one exception, build somewhat similar nests but never any decoration as the tail on the

GREY FANTAILS BREEDING IN SUBURBAN GARDEN (Cont'd.)

Grey Fantail's nests. Perhaps it may give balance to such a frail nest, or it may be for a form of drainage, or perhaps just an added form of decoration to improve its camouflage from predators.

Grey Fantails are quite common in the bushland areas around Ballarat and can be observed there all the year round, but there is a movement of the species to the north during the winter months, but not all move out, and the build up again occurs in September and October.

It will be interesting if the pair which is at present in Mr. Coutts' garden will have a third clutch this season, and if so will further material be added to the already existing nest. I have not known them to add so much to a nest as in this instance.

When nesting in natural habitat, the nest may be as low as three feet or right up to 30 feet above the ground, and they will nest in a variety of trees, but the selection is more often than not a wattle or eucalypt sapling.

(Since writing this article, I visited the Coutts' garden in Ballarat to see a nest being built for a third clutch, but this time 15 feet up in a huge walnut tree. This nest had the most perfect tail piece I've ever observed on a Grey Fantail's nest.

What then happened that no tail piece was added to the original nest?)

* * * * * * *

Contributions to 'Geelong Naturalist' - articles, short notes, extracts, reviews, black-and-white photographs, ink sketches and so on - should be forwarded to the Honorary Editor, 4 Victoria Terrace, Belmont, 3216.

* * * * * * *

THOSE STRANGE FIBRE BALLS

By Trevor Pescott

Anyone who has fished Corio Bay will undoubtedly know of the silty parts where there are lush pastures of sea grass; such areas are the favored haunt of certain fish species, not the least of which is the grass whiting, a favorite of many anglers.

This green, grass-like plant is more correctly called the Grasswrack, and is given the scientific name of Zostera; several species occur in Victoria, and the most plentiful of this is undoubtedly the one called the Dwarf Grasswrack, a plant which grows extensively within Port Phillip Bay.

One could be forgiven for looking upon this little plant as something quite ordinary, without any unusual features excepting perhaps that it is the favorite food of the Dugong of Northern Australia; my own observation of it is as a plant indicating the presence of a deep layer of ooze, on which it grows.

Many times I have waded through shallow water at Stingaree Bay and Mud Island, and wherever this Grasswrack grew, the ground was soft and muddy; I knew it as Eelgrass (which strictly speaking is a totally different plant) and knew that its grasslike leaves could camouflage broken bottles, jagged shells and fish.

Had I taken a little time to study this Zostera I may have uncovered one most remarkable feature of the plant; but it took the arrival from South Australia of several round fibre-balls to make me do some botanical homework.

Most gardeners know that salt is toxic to flowering plants, and that few plants apart from seaweeds grow near or in the sea; mangroves and samphire tolerate estuaries and tidal areas, and some other plants grow near the water's edge, but basically saltwater and flowering plants are incompatible.

Seaweeds are not flowering plants at all, but are algae, primitive plants which have neither flowers nor seeds, no proper stems nor roots; algae we know not only as seaweeds but as the green growth in fish-bowls and as the co-partner with fungi to form lichens (pronounced liken, incidentally).

Where does Zostera fit in?

SUMARINE TENNIS BALLS?

photo by Trevor Pescott.

THOSE STRANGE FIBRE BALLS (Cont'd.)

There are two basic families of plants which produce flowers and which grow beneath the sea - they are the Zostera and the Posidonia.

Whilst Zostera is plentiful in Victoria, Posidonia is absent; instead it thrives in South and Western Australia's seas, and grows there much as Zostera does here.

There are only two Posidonia species found throughout the world, one, P. australis, grows in Australian waters, and the other, P. oceanica, grows along the Atlantic coast of Europe and in the Mediterranean.

Posidonia has strong fibre veins in the leaves, and after a heavy storm at sea, masses of these fibrous leaves are washed ashore; once dry, the fibre will blow along the beach, and either heap up into a mass or, on occasions, roll into near perfect spheres of closely packed fibres.

Each fibre strand is up to nine inches long, and the resultant ball of fibre is quite light, but firm; mixed among the fibres are specks of shell, but basically each ball is clean of any other beach flotsam, and may be from the size of a golf-ball to nearly two feet in diameter.

The fibre itself is rather low standard compared with other plant fibres, but attempts have been made to use it commercially; the plant on occasions has been harvested using rakes to lift the growing plants from the sea-floor, but although the fibre has been tried for a variety of uses such as linoleum-backing and carpet underfelt, only one use has been reasonably successful - as a hot-water pipe insulation!

The two fibre-spheres I was shown, and which set me on a hunt into botanical literature for more information, were brought back from South Australia; indeed the beaches of Spencer and St. Vincent Gulfs are the best places to find these quite remarkable objects.

* * * * * * * *

THE SWAMPS

By Lionel Welsh

No marshman's strain is in my blood,
   Who stilled the frogs while my lord slept;
Yet do I love these seas of mud,
   By rushes bound, by lignum swept.
I love them for their fine rare things,
   The falcon and the bird it kills;
The silver span of ibis' wings,
   The great black sickles of their bills.
I love them all . . . the harrier,
   Beating the bushes for its prey;
The teal duck rising with a whirr,
   The swallows at their summer play.
They're purple sceptres, not thin reeds,
   That wave at every winds behest;
When morning gilds or sunset bleeds,
   To slow extinction down the west.
I love the red gum's ample girth,
   The leafy boughs where herons sleep;
And wake again when night clasps earth,
   To take the air with velvet sweep.
Beauty is here, beauty in flood;
I have no eyes to see the mud.

* * * * * * *

AT RANDOM

BIRD SKULL IDENTIFIED:

by Jack Wheeler.

Walking along the beach at Peterborough a few weeks ago, a Ballarat resident noticed a skull of a bird washed ashore, and his brother, Roger Thomas, being a keen bird observer, handed it to me to send to the Museum for identification. A note from the National Museum of Victoria has identified it as the skull of a White-headed Petrel, one of the larger members of the very large sea-bird family known as "Petrels".

It is a bird which measures approximately 19 inches in length and would be by comparison, half as big again as a Short-tailed Shearwater or Mutton-bird.

The plumage of this bird is distinctive in that the upper parts are dark brown and grey whilst the tail is white. The underparts of body and tail are white and the under surface of the wings a dark grey. As its name implies, there is also considerable white about the head.

It is mostly found in the Antarctica seas to about latitude 33° south. It breeds in colonies on several islands, namely Kerguelen, Antipodes and Aukland.

I have never seen the species alive, but I have on occasions found beach-washed specimens which I have duly forwarded to the National Museum of Victoria. My first specimen was found at Ocean Grove in June 1958, and two months later a second was found washed up at Barwon Heads. My last specimen was that of one found as a skeleton on the Fishermens Beach at Torquay in April of 1960.

At the present time quite a few Short-tailed Shearwaters and Fairy Penguins are being washed up dead on beaches of south-western

AT RANDOM (Cont'd.)

Victoria. Only last weekend I counted five Mutton-birds and two Fairy Penguins washed up at the mouth of the Bream Creek between Torquay and Barwon Heads. What had killed them is one of the sea's mysteries which naturalists find it very difficult to explain.

Storms at sea take their toll and following the big blow of the first two days of October last, countless birds were later washed up dead. Food supply would be another factor and as we have droughts on land so there must be droughts at sea.

ACT OF CRUELTY TO SPARROW RESULTS IN HEAVY FINES: by Jack Wheeler

Recently, a young pastrycook of Geelong West was fined $50 (in default 10 days imprisonment) for killing a creature which involved cruelty and $100 for the discharging of a firearm within a town.

The act of cruelty was that of pegging an injured sparrow to the clothes line and then shooting it. In the first place the bird had been shot in the wing when it landed on the clothes line, and when the bird was so injured, it had been pegged to the clothesline and again shot.

It is pleasing to know that the court in its judgment brought down heavy penalties in this case and should be a lesson to others that cruelty of this nature will not be tolerated, even though the victim was only a sparrow, but a sparrow is a living creature and has feeling the same as any other species of bird, and just as we humans have.

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Support for the Club in the form of cash donations, books for the library, etc., will be gratefully acknowledged; forward them to the Honorary Secretary, 26 Fairbrae Avenue, Belmont, 3216.

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JUNIOR PAGES

PHASCOGALE OR POUCHED MOUSE

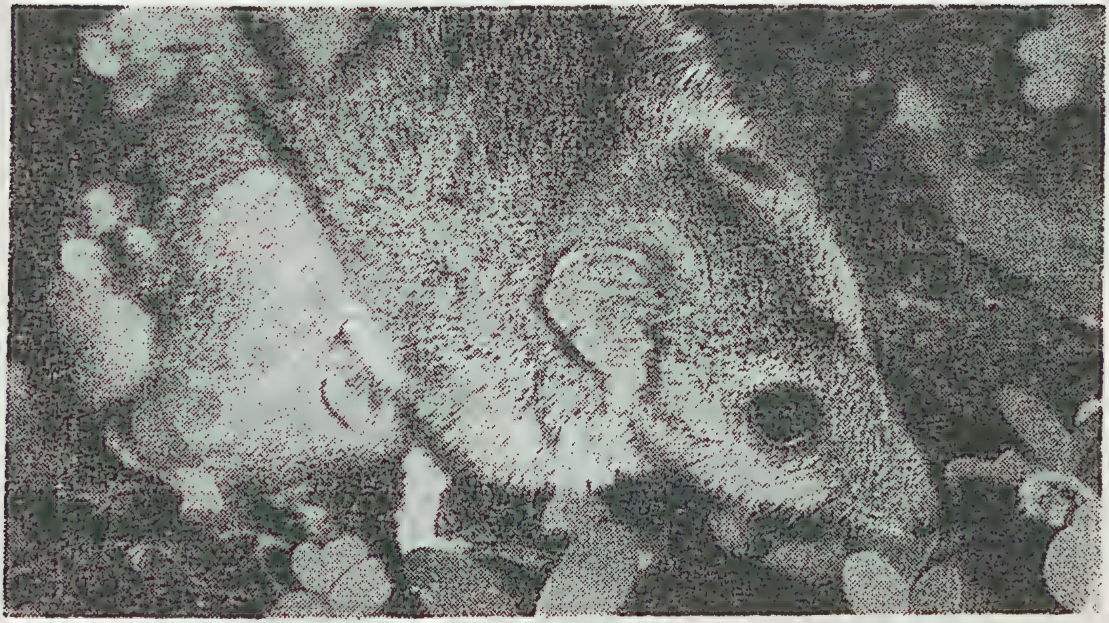

photo by Trevor Pescott.

The photograph above is of a Marsupial Mouse, or Phascogale, an animal which is not really a mouse at all; it is related to the Native and Tiger Cats, and carries its young in a pouch just like a Kangaroo.

Phascogales - pronounced "fas-co-gale" - feed on insects, which they hunt amongst the fallen leaves, grass and ferns in the bush.

They do not eat seeds as do the real mice; true mice are rodents, and they do not have a pouch in which to look after their young as our Phascogales have.

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JUNIOR PAGES (Cont'd.)

TOADFISH ARE POISONOUS

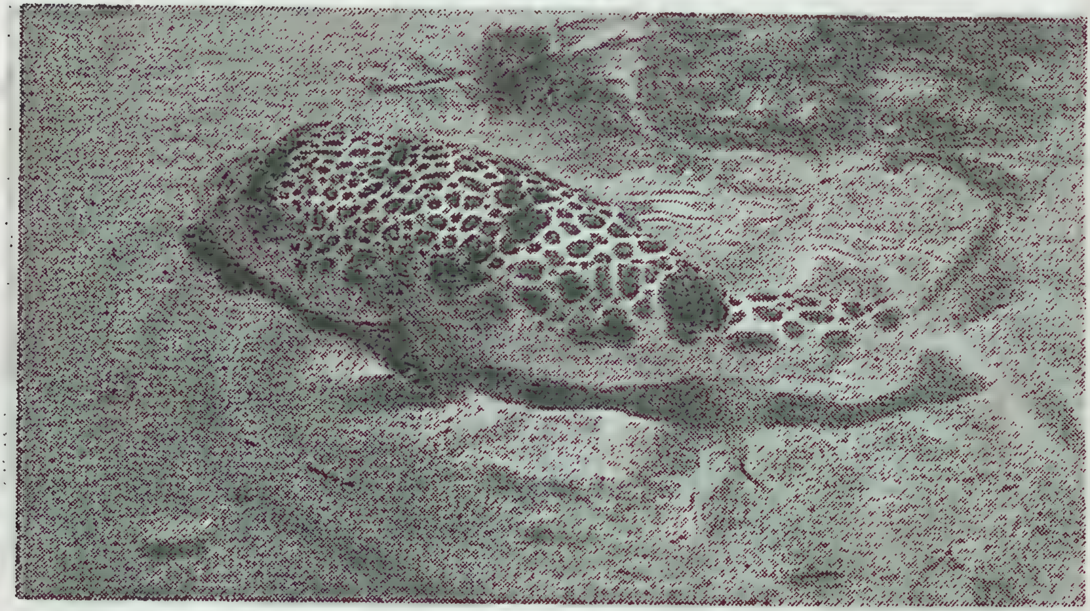

photo by D. King

Summer is the time when we spend a great deal of time at the beach.

Often in the shallow and rock pools we see the Toadfish, stocky little fish about 6 or 8 inches long.

Whilst most fish are good to eat, the flesh of Toadfish is poisonous, and anyone who eats it would become very sick indeed.

Even gulls and other birds which feed on fish will never touch Toadfish, for they have learnt that to eat them would be very dangerous.

Winter, too, is a good time to go to the beach for then many of the ocean's creatures may be found washed onto the shore.

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Geelong, Victoria

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Visitors Welcome

All papers submitted for publication in this journal should be sent to the Hon. Editor.

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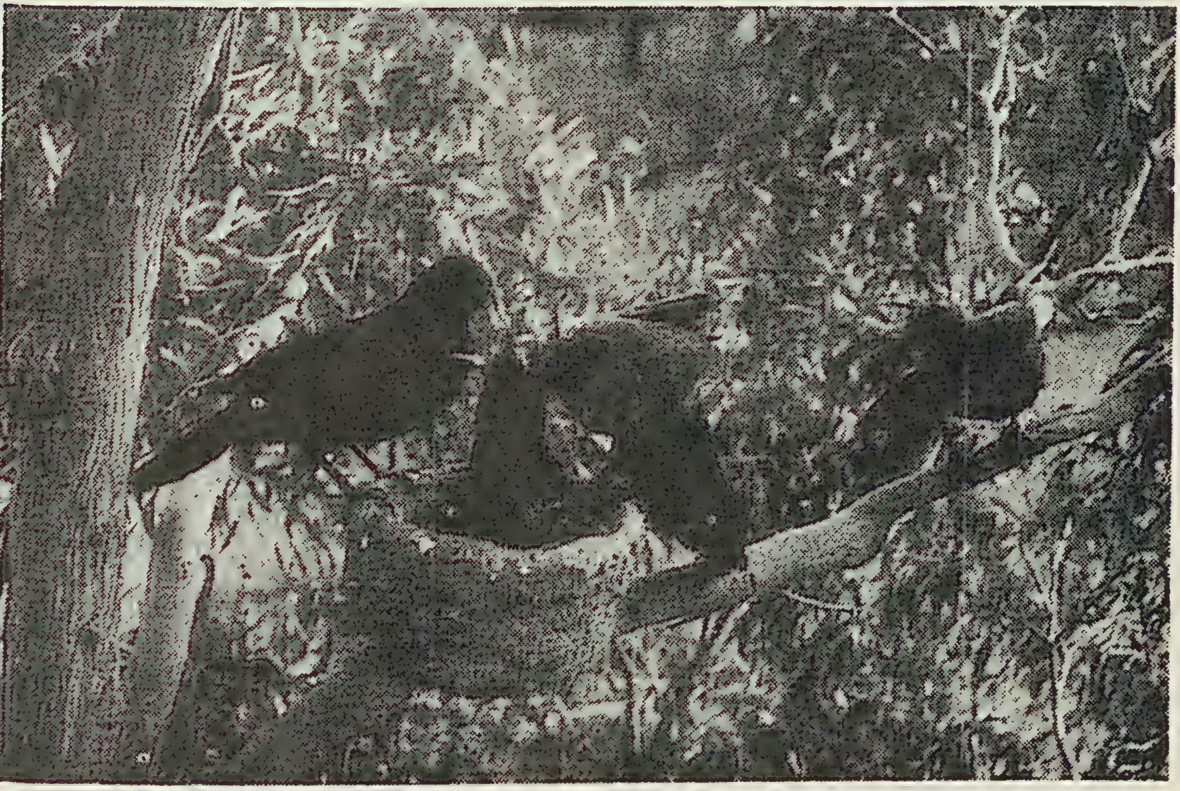

WHITE-WINGED CHOUGHS

Registered at G.P.O. Melbourne for transmission by post as a periodical

Hon. Editor: Trevor Pescott

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The Statements and the opinions contained in the papers published in this Journal are the responsibility of the respective authors.

MEMBERSHIP

Membership of the G.F.N.C. is open to any person interested in Natural History. The 'Geelong Naturalist' is distributed free to all members, and the Club's reference and lending library is available.

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COVER PHOTOGRAPH: WHITE-WINGED CHOUGHS by Trevor Pescott.

GEELONG NATURALIST

NATIONAL MUSEUM
15 MAY 1972
OF VICTORIA

Vol.8. No.4. February 1972

EDITORIAL

This, the last issue in Volume 8, has completed a series of Journals which, we hope, has been of great benefit to the members of this Club.

Now we are able to make a few, small changes in format and printing quality which are designed to present a more personal contact between Club members; we will produce reports of Club excursions, on Club meetings and a program of activities planned for the coming months.

We will continue to produce the pages of "At Random" and the "Junior Pages", although the success of both depend entirely on member participation; many notes on observations are being lost to future naturalists because they are not being permanently recorded in print.

In decades hence, the value of observations and impressions of present day wildlife status will be immense in determining the decline or otherwise of native and introduced flora and fauna; "Geelong Naturalist" should be a medium in which such observations are recorded, for our Journal is placed on file in National and State Libraries and at other centres of learning, where future generations of naturalists will have use of them.

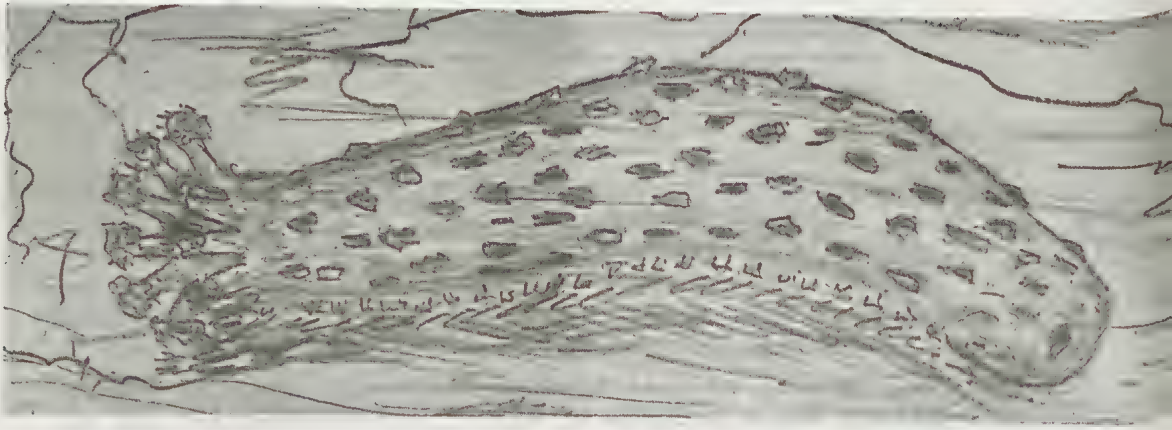
Junior participation has been nil, and this is largely due to the lack of parent leading; whether your child is a junior member or not, urge him to observe and note his observations, then suggest he (or she) send them to the Editor.

Finally, may I again ask for material, articles, notes and photographs for use in "Geelong Naturalist"? With your cooperation, the success of our new series will never be in doubt.

TREVOR PESCOTT,
Hon. Editor.,

A LOCAL SEA-CUCUMBER

By D.F. King



GENERAL APPEARANCE OF THE SEA-CUCUMBER FOUND AT POINT RICHARDS.

Sketch by D.F. King.

Walking one day along the beach at Point Richards, near Portarlington, I came across what appeared to be a strange animal washed up on the beach. It had the appearance of a large slug, being sausage shaped and about four inches long, of medium brown colour. Closer investigation revealed that this animal was still alive and, fortunately, having a jam jar with me (just in case I found something of interest), I filled it with sea water and placed the animal in it.

Placing it in the water revealed far more detail and it now appeared to be a sea-cucumber. The dorsal or upper surface was covered in a series of tubercules and the under, or ventral surface, was covered in a mass of tube feet similar to that of the star fishes. Taking my find back to the caravan in which I was spending the weekend, I filled a bucket with sea water and deposited the specimen. Almost immediately it began to travel slowly around the bucket, occasionally sending out a jet of water from an aperture at one end. At this stage I was unable to tell which end was the front or the rear, as they appeared to be identical. After a while, at the opposite end to that emitting

A LOCAL SEA-CUCUMBER (Cont'd.)

jets of water, there emerged a number of tentacles like a crown surrounding another vent, each tentacle terminating in feather-like fashion. The body had now extended to about twice its original length and the animal was proceeding up the side of the bucket, continually waving its tentacles. It was observed to do this for some hours, during which time the water was changed for fresh sea water several times. After about five hours in the bucket I had to leave it for a period of an hour or so and on returning I was surprised to find the sea-cucumber had ejected a whole mass of its internal organs and appeared to be dead, so the bucket was emptied back into the bay.

The following day I had some time to spare and decided to return to the area of beach where I had found the sea-cucumber, in the hope that I might find another specimen. To my delight, I discovered many such specimens all within a small area of very shallow water with the bottom covered in sea-lettuce. All the specimens I observed were moving slowly over the sea-lettuce, waving their crowns of tentacles like feather dusters, presumably feeding on the detritus.

Having found this sea-cucumber my curiosity was aroused and I decided to do some research and find out a little more about these creatures. They belong, it appears, to a group of invertebrates called Echinodermata which include the classes of Star Fish, Sea Urchins and Brittle Stars, and of all the invertebrates the Echinoderms are the most truly marine, not one of the near 5000 species lives in fresh water or on land. They are, in fact, a very ancient group, having evolved in the Cambrian period many hundreds of millions of years ago.

The class name allocated to the sea-cucumber is Holothurioidea. They are found from inter-tidal shores to the very deepest of the ocean trenches, but it is in the tropics that they are most abundant, and are sought commercially as trepang or beche-de-mer, an oriental delicacy.

Species of sea-cucumber vary in size from less than one inch to a very long species, called Synapta, which is snake-like in appearance and may be up to three feet in length. Some are very

A LOCAL SEA-CUCUMBER (Cont'd.)

soft and rather flabby, as in the local species, and others are quite leathery. All have the crown of tentacles surrounding the mouth, although the number varies between ten and thirty and may be pinnate or branched according to the species. They range in colour from white through yellow and orange, brown and dark green to black.

Many sea-cucumbers when disturbed have one of two means of defence. They may eviscerate or disembowel themselves, or alternatively they may expel from the anal aperture a mass of sticky threads which snare any adversary, and are called the tubules of Cuvier after their discoverer. Even in the event of evisceration the sea-cucumber may continue to live, due to its remarkable powers of regeneration that replace all these organs.

All but one group of sea-cucumber have tube feet, and some other species have these feet distributed over the entire body. However, most species have a "sole" with rows of well developed tube feet that terminate in a sucker disc.

* * * * *

OCEAN CURRENTS

By Anon.

An ocean current is a general movement of the waters of the ocean, which may be permanent or semi-permanent. These flow at all depths, in different directions, they have different speeds, and they may be horizontal or vertical. But the types with which the seafarer is concerned are those on the surface because they can affect the speed and the course of the ship.

A wind of high consistancy, blowing over the great stretches of an ocean, will have the greatest effect in producing a current. Therefore, due to the prevailing winds in the two hemispheres, there is a general anti-clockwise movement in the Southern Hemisphere, and a clockwise movement in the Northern. But, in common with so many general rules, there are the notable exceptions.

ACACIA GALLS

By George Crichton, Croydon.

On bush rambles one often observes wattles with rough reddish brown gall-like masses attached to their limbs and even twigs.

These vary in size from a match-head to as large as a clenched fist or on occasions even larger.

Usually these are mistaken for insect galls but although insects often burrow into them or may even be found lurking about their rough exterior, these galls are actually due to attack by a fungus which is a type of rust fungus.

Insect galls have a fairly constant size and shape for each species of gall forming insect but these fungus excrescences are rough, irregularly nodulated and vary much in size. Furthermore they are of solid woody material and contain none of the uniform larval chambers present in insect galls.

The casual rust fungus (Uromycladium mcalpine) is said to be an entirely Australian genus of seven species and all appear to confine their attacks to the Acacias and can on occasions attack and kill whole stands of certain species.

Actually, only two species of rust fungus cause these gall formations, and one of these brings about the condition known commonly as the "Witches Broom".

When examined under a microscope, spores of the rust fungus are very beautiful and one species appear like minute Chinese lanterns.

* * * * *

R.H. CROLL "Wildlife" May 1946, p.747.

Of the White Cockatoo - "Have you ever seen him flying between you and the sun? Then he becomes an ethereal thing, a creature of transparent filmy gold, a being so resplendent that you can forgive him even his voice - you have nothing left but admiration."

* * * * *

THE TALE OF A WHALE

By John Hunt

One cold winter's day about 1933 my brother and I heard that a huge whale had been washed up on the beach on the Anglesea side of Point Addis, so we decided to have a look.

Approaching the site we were met by a terrible smell, thick enough to be cut with a knife! The whale, about 70 feet in length, and estimated to weigh about 70 tons, was right on the edge of the water, being tossed by the movement of the ocean; each move causing the flukes to rise in the air.

There was a very strong land wind and the waves were extremely high, coming in seemingly vertical. A very large area of the sea, possibly up to a quarter of a mile from the beach, was covered by countless thousands of sea birds, resting after gorging on the whale. Many hundreds of these were albatross, and there were scores more albatross tearing at the carcase while keeping a watchful eye on the incoming waves. When a wave was right on to them they would turn and dive into it. The sight of them disappearing with the feet momentarily sticking out was highly amusing. Some would be caught, and rolled up the beach where they would be helpless as they could not take off, and would have to walk back to the water and dive into a wave. Some, after being rolled by a wave, vomited, and then flapped heavily out to sea to rest on the water. The albatross is a very large bird; some of those caught measured up to twelve feet across the wings.

We watched this unforgettable sight for an hour or so, but the stench made it decidedly unpleasant. Eventually, days later, the ocean took the monster back, but not before huge multitudes of sea birds had gorged on it.

As the T.V. ad. says - "You can banquet on the whales".

* * * * *

SWALLOWS IN WINTER

By Trevor Pescott

Where do the swallows go in winter?

This question has worried naturalists and bird observers for as long as people have realised that swallows - and many other birds - migrate away from the winter chill and resultant food shortage, returning regularly when spring promotes new plant growth and a new crop of insects.

Yet it is only quite recently that we have begun to find the answers to the queries on bird migration, and only after we have produced systematic banding plans, systematic and intensive observation, and the use of such refined equipment as long range radar and transistorised radio transmitters.

As early as the years following about 1750, more than two centuries ago, observant country, and town, dwellers began to take an interest in birds; perhaps the best known was the Reverend Gilbert White an Englishman who had published in 1789 the book entitled - "The Natural History and Antiquities of Selbourne in the County of Southampton; with engravings, and an Appendix".

The observations he made were full of logic, and if some of his theories have since been disproven, they revealed a clarity of observation and deduction to an intense degree.

White often wrote of the swallows that congregated in autumn, particularly near chimney stacks where he believed they roosted, and near water where he thought they settled to pass the winter in hibernation just as the small mammals do.

The suggestion was made, however, that the birds just may fly South to Africa, but this White found rather hard to accept as a logical answer to the sudden disappearance of the birds.

Since White's day, the study of ornithology has grown to an immense degree and we have at last had the migration route of the European swallow traced quite clearly.

James Fisher, in his book "Bird Recognition - Part 3" and published in 1955, sums up the migratory movement as follows - "Whole European populations appear to withdraw to winter in

SWALLOWS IN WINTER (Cont'd.)

Africa. South of the Equator . . . From marking (banding) records British breeders appear to winter in the Union of South Africa, via West Europe and West Africa".

He adds that the birds use well marked coastal routes, although many pass on a broad front rather than in long, thin line.

The bird referred to is known as the barn swallow in America, and the North American populations also follow well defined routes Southward.

There are reports that this species may, from Asian populations, occasionally reach North Australia, but as far as I know any reports of this barn swallow are not completely authenticated.

The advances that have been made in our knowledge of birds, and other wild life, throughout the world is indeed vast.

Yet as we learn more, we begin to realise further just how much we do not know.

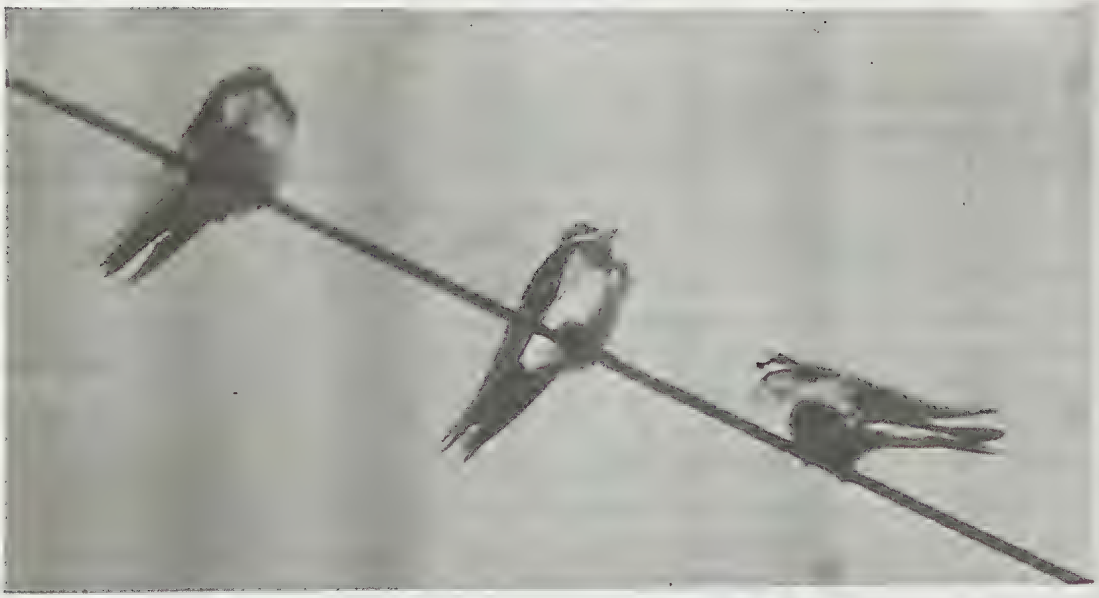
As we map outlines of animal behaviour, we find there are gaps which are so hard to fill, yet which are so very important if a complete life history is to be made.

The foregoing remarks refer mainly to the species of swallow resembling, but quite distinct from, our Australian welcome swallow; but they were prompted by the fact we have at the moment flocks of swallows which appear to be preparing for a Northward migration.

Along telegraph lines in particular, flocks of dozens of swallows congregate each autumn, and over the last month I have been watching the flocks near my home in Belmont.

Whether they migrate or not I do not know, but they group - and disappear at rather irregular intervals suggesting a migration is taking place.

Yet I feel that if our birds are on the move, the migratory urge is not as strong in the swallows as it is in other birds, for they seem to lack the purposeful air that other migratory birds possess at this time of the year.



WELCOME SWALLOWS PREPARE FOR MIGRATION

WELCOME SWALLOW AT ITS NEST
photos by Trevor Pescott

SWALLOWS IN WINTER (Cont'd.)

The answer probably lies in a partial migration only, with most of our birds moving perhaps to the inland or to the areas where insects congregate and so provide an ample food supply.

After all, most bird activity is dominated by the demand for, and the availability of, a good food supply.

* * * * *

THOUGHTS AT AYERS ROCK

By Joyce L. Hunt

I lie awake within my tent
And gaze upon the starry sky,-
The massive shadow of The Rock -
And think of all the days gone by.
I see a group of white men sit,
And, as the camp fire flames leap higher,
I see a group of *black* men there
In days gone by, beside *their* fire.
I see the hunter straight and strong
With hand-made weapons stalk his prey.
I see his lubra working too,
And little ones carefree and gay.
The white man took the black man's land.
The black man comes not here again
Since sacrilegious foot and hand
Have turned the sacred to profane.
So, when we see them dirty, - drunk -
Let us remember, to our shame -
Uncivilized they were - and yet
A noble race - until *we* came.

* * * * *

SIGHT OR SMELL

By Trevor Pescott

The question of how strongly developed in birds is the sense of smell has been argued for as long as ornithologists have taken an interest in the study of bird behaviour - even as far back as 1835, experiments were carried out in an attempt to establish if American Turkey Vultures found their food by smell or by sight.

Some facts have been established, for by experiment we know that ducks have a well-developed sense of smell. Albatrosses and some other seabirds have a keen sense of taste, and the closely allied smell sense may also be keenly developed.

The 1835 experiment was carried out by that magnificent ornithologist, John James Audubon, the man whose work in America laid the foundation for most future study of birds in that country and who was to America what John Gould was to Australia,and a contemporary John Bachman.

In an attempt to prove, or disprove, the theory that Turkey Vultures used a highly-developed sense of smell to locate its favorite food - putrid flesh - Audubon and Bachman left some animal carcasses exposed and hid others, to observe the ability of the Vultures to find the hidden food.

The results suggested that the birds used only visual guides to find the food. A later experiment by Frank Chapman, using hidden carcasses, produced rather contradictory results, suggesting that the birds did use a sense of smell.

This latter result seems borne out by the fact that in the Turkey Vulture, the section of the brain controlling the smell sense is three times larger than that of the Black Vulture.

It would seem, then, that the sense of smell in some birds is well developed while in others it is reduced or absent, but there is room for a vast amount of research in this realm of ornithology alone.

One final point - the flightless Kiwi in New Zealand, a nocturnal bird with very poor eyesight, certainly uses the nostrils located at the tip of the beak as the main method of finding food.

WHISTLING KITE AT ITS NEST

WANDERING ALBATROSS ASHORE

photos by Trevor Pescott.

BY SIGHT OR SMELL (Cont'd.)

It could well be that other birds use the same method to find their food, or at least to gain an idea where food may occur.

I remember reading once where a putrid-flesh odor was introduced into gas being piped overland across an American desert area. The theory was that if there was a leak in the line, Vultures would pick up the scent and congregate there - I never heard the outcome of this, whether the theory was tested, and if so whether it was put into practice.

Australia does not have any species of Vulture amongst its 700-odd native birds; but their place is taken by some of the larger birds of prey, notably the Kite of the inland North.

The Fork-tailed Kite, in particular, is well known for its habit of feeding on offal at the cattle-killing works.

These birds behave quite Vulture-like in many respects, flocks circling on the air currents while in search of food.

Locally, the Whistling Eagle or Kite takes the place of the Vulture, and on occasions this bird also will flock to a place where food is readily available.

I have seen up to 30 birds in the vicinity of Thirteenth Beach, and Charles Belcher, in his book "Birds of the District of Geelong, Australia", wrote: "On February, near the Yarram Creek, Marcus Hill, I saw about 25 of these cumbersome hawks, in about half a mile's journey. It is possible they were after poisoned rabbits; they are great eaters of carrion, and rarely do harm to anything living, unless it be insects. They are inoffensive, sluggish creatures".

Belcher's notes referred to observations more than 50 years ago, and one wonders how these birds have survived in this district, for their eating of poisoned rabbits must have taken a huge toll on these birds.

Yet they are still quite plentiful, and their nesting localities include almost all grazing land around the city. Nearest to the city could be Moriac, You Yangs or perhaps beyond Leopold.

* * * * *

KESTRELS NEST AT SHELL REFINERY

By Jack Wheeler

Man made structures are becoming more and more in demand for nesting birds. We have just a few examples, Welcome Swallows around dwellings, Bottle Swallows under bridges and in culverts, Gannets on pile-lights, Starlings and Pardalotes under roofing iron, and now we have hawks on tall towers.

Recently I had the pleasure of meeting Mr. Stuart Stokes of Surrey in England and during his stay in Geelong, I was able to show him several new birds which he wanted to particularly see whilst in Australia. His knowledge of birds of the world has taken him to every corner of the earth in search of birds and in the limited time we had together he was able to enlighten me on many factors of bird-life overseas. In his travels he has observed over 3000 species of birds and his total whilst in Australia was approaching the 300 mark.

Discussing the status of the Peregrine Falcons, particularly in Europe where it is fast becoming extinct, Mr. Stokes told me of a strange record of a pair of Pergrine Falcons nesting on top of a tall tower right in the heart of London and despite the noise of traffic, the bright city lights and the occasional smog, were successful in rearing their chicks. Little did I realise that on the next day I was to be invited to the Shell Company's Oil Refinery at Corio, Geelong, to inspect and identify a nest of a pair of hawks right in the heart of this huge plant where chimneys and towers are a feature of the skyline.

At first it was thought that the hawks in question were Black-shouldered Kites, as they were frequently seen about the works and often perched on high towers.

The day was not very promising as there was a strong south-westerly blowing and the barometer did not give any encouragement for any improvement, so it was decided to carry on regardless.

First of all my companion, Mr. Ron Lavery, also a very dedicated naturalist and I had an interview with Chief Engineer of Shell Refinery, Mr. Ted Ditchburn, and he assured us that the Shell Company were very conservation minded and that any wildlife which

KESTRELS NEST AT SHELL REFINERY (Cont'd.)

strayed into the area was treated with every respect, and furthermore these two hawks nesting near the top of Stabilizer Column "C" 706 would have every protection as far as his Company was concerned. He allocated Mr. Ira Savage, another naturalist , whose study into the movement of Silver Gulls has drawn much praise from the Antarctic Division of Research, to accompany us for as long as we wished to stay.

Mr. Savage has been with the Shell Company for 17 years, and knew every step we were to take during the next two hours.

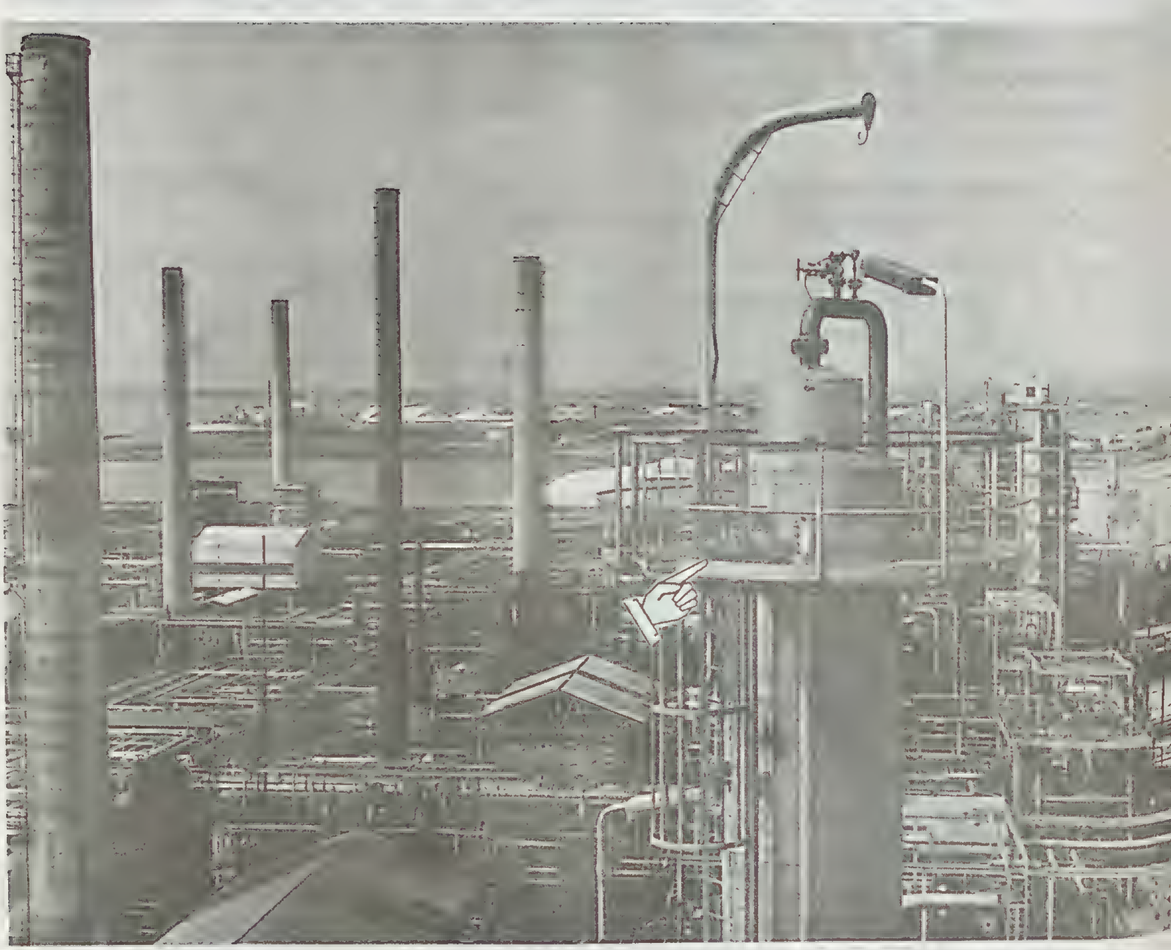
From the ground, we were shown the nest on the top safety platform, and at 120 feet appeared only the size of a saucer. At the rear of this nest tower was the giant 325' chimney which dwarfed all others in the area and we were told that this chimney stack was the prince of all as far as Australia was concerned, and as we laboured up the twin tower of "C" 706, and looked across at this giant, I was pleased the hawks had not chosen it to nest.

The first three landings were sloping stairways but from then on it was vertical. Laden with camera gear and binoculars it was not an easy climb, but rests were taken at each safety platform.

The Shell Company are particularly safety conscious and we were each issued with crash helmets, and with the high wind, straps had to be tightened to keep them on. I had started out to counting the stairs, but at 84 I gave up and concentrated on getting to the top all in one piece.

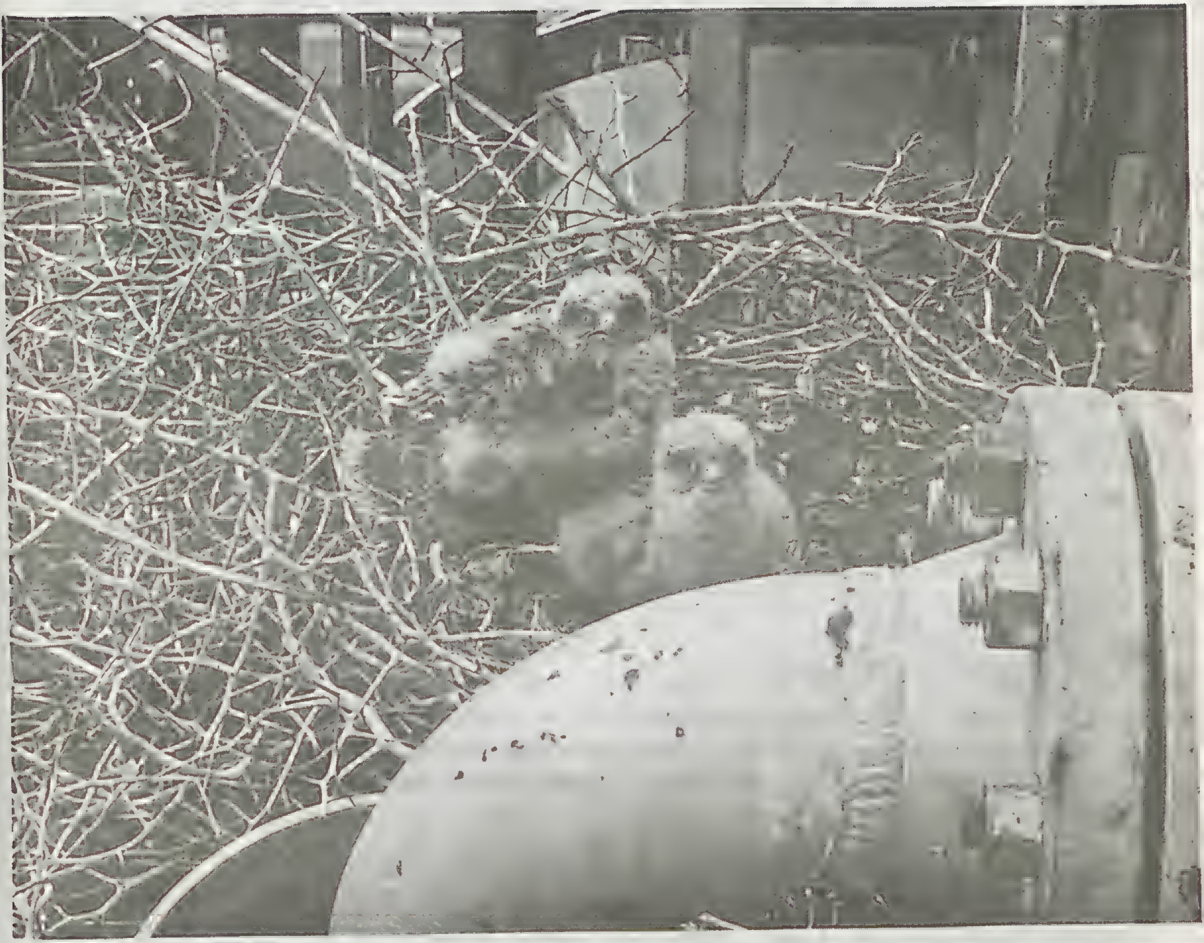
On reaching the top platform of the twin stabilizer tower, we were able to look across at a slightly lower angle, to view the nest about 70 feet away, and with the aid of binoculars, I was able to see that the nest was placed in an excellent position by the parent birds as far as shelter was concerned, being on the north-east side of the tower, and also right against a safety fence of cyclone mesh.

The nest contained two young, which were well feathered and would be approximately 5 weeks old. By the tan colour of the back feathers and the dark breast striations, I identified them as Nankeen Kestrels, often incorrectly termed as sparrow-hawks, but



NANKEEN KESTREL'S NEST SITUATED ON SAFETY PLATFORM ON TOP OF STABILISER TOWER - 120' ABOVE GROUND LEVEL. THE TALL 320' CHIMNEY IS ON THE EXTREME LEFT.

photo by Graeme Thompson - Shell photographer.



CLOSE UP OF PAIR NANKEEN KESTREL CHICKS ON TOP SAFETY PLATFORM OF STABILISER TOWER AT SHELL OIL REFINERY CORIO. NEST WAS MADE MOSTLY OF BOXTHORN - LINED WITH DRY GRASS.
COULD THE KESTRELS HAVE BUILT THIS NEST THEMSELVES, OR WAS IT A DISUSED NEST OF SOME OTHER BIRD, SUCH AS A RAVEN. KESTRELS FREQUENTLY USE DISUSED NESTS FOR BREEDING.

photo by Graeme Thompson - Shell photographer.

KESTRELS NEST AT SHELL REFINERY (Cont'd.)

which actually are one of our most useful hawks and will rarely attack chickens.

By the aid of telephoto lenses, we were able to photograph the nest position and the chicks, and also before descending this tower, the female which came in to shelter on a lower platform from the high wind, but she did not approach the nest during our presence.

Before alighting on her perch in the high wind, it was with great difficulty that she was able to rest on the exposed railing, and had to use her tail feathers repeatedly for balance.

We also had great difficulty in keeping cameras steady enough for photographs, and had to shelter as much as we could behind the body of the tower itself. The view from this position was very eye-catching in all directions. To us it seemed most strange that a pair of birds which mostly use disused magpies and ravens nests as well as nests of other species, of which there must have been many in the rural sections of the Geelong district, to breed in such an exposed position with the continuous roar of electric motors below, and lighting at night which is nothing short of fairyland, and one fluorescent light almost immediately over the nest.

Later I was given the answer, but in the meantime the first ascent was made and the second descent commenced on tower "C" 706, the nest tower. On this tower there were more vertical steps.

The last rungs of the vertical ladder brought us within inches of the nest and the young birds themselves, and they revealed some alarm as two steel helmated heads appeared to view them. They immediately sat up, opened their beaks as if for food, but certainly as a menacing gesture, and then perched on the far edge of the nest. If they had been on the other side of the tower, fully exposed to the high wind, photography would not have been attempted, as the safety of the birds was uppermost in our minds.

KESTRELS NEST AT SHELL REFINERY (Cont'd.)

The whole base of the nest structure was roughly made of dead boxthorn and must have needed much energy to carry same so high, and some pieces would measure 20 inches in length, at the least. The central part of the nest revealed some sort of lining which could have been of course type grasses, but the nest was clogged with excreta and remains of dead birds and feathers. One freshly killed bird had been eaten and was that of a sparrow, the wings being all that remained. Other feathers appeared to be those of starlings.

Both birds were in good condition, and by their feathering I would say that both would be flying within the next ten or twelve days. The tails of both birds were rufous as in the adult female. The male, when mature has a pale grey rump and tail.

Having visited the nest and its chicks, and taken the necessary photographs, we made the descent in good time as if veterans of the art of vertical ladder climbing, and again as we viewed the nest from the ground we wished the birds every success, but we were still puzzled as to why such a nest site was chosen. Returning our safety helmets, and discussing the nest with a member of the staff, we were told that the whole refinery has several links with nature. Many other birds breed there, such as Welcome Swallows, Magpie Larks, Sparrows and Starlings, and also there is a fox's den under one of the storage tanks. The flocks of starlings which roost there every night is a sight to be seen, as they arrive in their thousands, and despite the bright lights of this fairyland city, which it truly is at night, have no trouble to catch up on their sleep. This would be a clue as to why this pair of Kestrels had chosen to breed at the Shell - a plentiful and assured food supply whereby not only birds were available to maintain their own diet, but also in plentiful supply for their chicks.

I remember several years ago returning from the west over the Nullarbor Plain, we spent the night at Kuralda Cave, where hundreds of Welcome Swallows roosted every night, and a pair of Nankeen Kestrels also roosted there, and under the roost of the kestrels were the remains of dozens and dozens of swallows, and I have often wondered how long it was before, by the depletion of numbers each

KESTRELS NEST AT SHELL REFINERY (Cont'd.)

evening or morning, that they had the sense to move to a safer roost.

Kestrels spend much of their time hovering over fields in search of small lizards, mice and such-like, and usually are not hunters of small birds, but at the nest we examined at Shell, there were only traces of small birds being fed.

Kestrels also nest in hollow trees, but most of these today are taken over by starlings as far as the Geelong district is concerned.

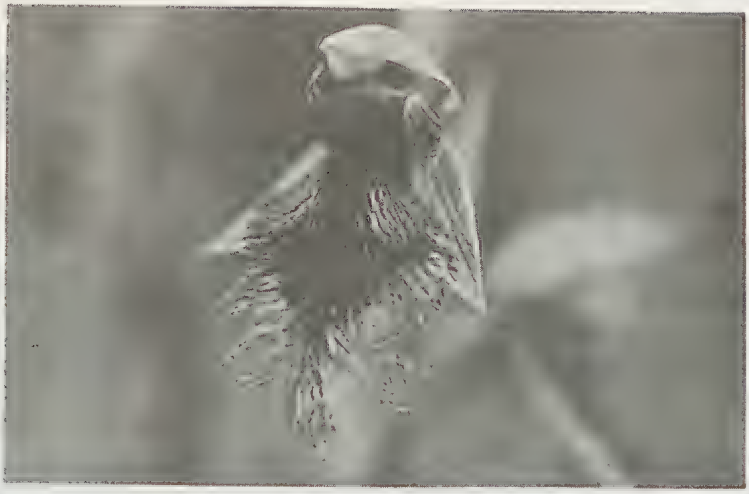
* * * * *

OUR COINAGE - OUR HERITAGE

By L.W. Elms

Our former coins, now so seldom seen, were of the formal type.
They showed our Queen in profile on one side.
The other side proclaimed our own Australia,
And displayed with pride our "Coat of Arms".
There, neath the stars and wattle blossoms stand two of the
well known creatures of our land.
One is the emu bird, erect and strong, and yet unique
because it cannot fly.
The other is our kangaroo which bounds along with such
terrific leaps it almost seems to fly.
And then it stops - and from its pouch a little "Joey" pops.
These creatures, so well known throughout the world
Have symbolised our land for many a day.
Lets hope Australia's image thus will last,
And native birds and animals will stay as in the past,
as our main features to attract the tourists.
In recent years our coinage has changed,
but on the obverse side are still arranged our many
Native creatures.
It is a pleasing thought that still we find our coins
and our creatures are combined, because we like them both.
An obligation for us all is thus inspired
to see our Parks and forests never fall victims to bushfires.
The coins which we handle day by day with animals thereon
thus seem to say to us they need our care.
Lets do our best to "Keep Australia Fair".

At Random



BROWNBEARD ORCHID
photo by Valda Dedman.

SANTA CLAUS IN THE BUSH:

by Valda Dedman

In the Rushworth district the children call the Brownbeard Orchid (Calochilus robertsonii) "Father Christmas", a name quite appropriate for this orchid with its wide hood, "moustache" petals, sepals like the sleeves of a gown, and its long brownish or purplish "beard".

Calochilus robertsonii is found in all Australian states, although its occurrence is very localised in Queensland, South Australia and Western Australia. It is common in Victoria, generally found in open forest areas. I have seen it in places as far apart as the Rushworth-Whroo ironbark forest, Anglesea, and south of Casterton. The flowers are greenish-brown, striped in red, and the base of the labellum is covered with large shiny purple glands. The labellum hair is very fine, yellowing as it withers. Several flowers are common on one stem, and the long strap-like leaf is triangular in section. The flowering period is from September to January.

Other common species in the genus

AT RANDOM (Cont'd.)

SANTA CLAUS IN THE BUSH (Cont'd.)

are Copperbeards (C. campestris) and Redbeards (C. paludosus). C. campestris has a beard only on the lower two-thirds of the labellum, the upper third consisting of two smooth plates. The labellum ends in a narrow strap. C. richae is very rare, found only in Victoria, and has no "beard" at all, the hair being replaced by very short glands.

ORIGIN OF SEAGULL TRACED:

by Jack Wheeler

At Point Lonsdale, Rip-view Lookout, is a good place for spending an hour or so watching the activity of boats moving to and fro as they enter or leave Port Phillip Bay. Also there, quite a population of Silver Gulls (more commonly called Sea-gulls) congregate to feed on scraps of bread and cake that may be offered during meal times.

Miss Ruth Marsh of Belmont, Geelong, was there several weeks ago and one bird which landed on the bonnet of her brother's car was banded, and she was able to read the number which was 081-69427. This number was later given to me in order to trace where the bird was banded. Recently in the mail was information from the Secretary of the Australian Bird Banding Scheme in Canberra that the bird had been banded at Penguin Island, Beachport, South Australia, on 29th September 1970, and since that period had travelled eastwards for at least 250 miles.

This is by no means a record distance as far as Silver Gulls are concerned, and to give some idea of their movements from their breeding grounds, recoveries from a rookery which I was interested in some years ago, were as far distant as Grafton in north-eastern New South Wales and Whyalla in South Australia. There is also a movement of these birds between the mainland and Tasmania.

AT RANDOM (Cont'd.)

CHALLENGE BIRD COUNT: BEST EFFORT YET:

by Jack Wheeler

On December 10th 1967, the Bird Observers Club with its headquarters in Melbourne accepted the American Audubon Society's challenge to a 24 hour bird count, and with a count then of 208 species broke the existing American record.

The best American record is at present held by San Diego, California, U.S.A., with a total of 217 species.

However, the latest challenge count carried out by the eight local teams, held on 12th December last was the best yet for the locals and the Australian total was increased from 222 to 224, and in that total seven species not previously recorded in these annual counts were observed, they were Black-tailed Native Hen, King Quail, Little Egret, Brown Bittern, Spotted Harrier, Collared Sparrowhawk and Zebra Finch.

At the last minute two emergency teams had to be put into the field and they both did a creditable job. Even the convenor, Mr. Roy Wheeler and his wife had to fill in one emergency team.

The next American count was to be held between Christmas and New Year, and it will be interesting to hear of their efforts over there.

LATE GREBES NEST:

by Trevor Pescott

During February this year, a Little Grebe has been busily tending its nest on a small roadside dam at Connewarre.

It is unusual to find these birds nesting so late in the season, when the possibility of the water level at the nest site falling to an unsuitably low level is a danger to their survival.

The dam on which the nest was built was beside the Barwon Heads Road, and the nest which was clearly visible from the road, was less than fifty yards from the passing traffic.

EXCURSION TO EDWARDS POINT

By Trevor Pescott

The G.F.N.C. excursion to Bellarine Peninsular on February 20th covered several areas which are rich in wildlife but which are all too rarely visited by naturalists.

At Lake Lorne, just west of Drysdale, a good variety of bird life was noted, including the following species:

Eastern Swamphen
Little Pied Cormarant
White-faced Heron
Welcome Swallow
Tree Martin
Black Duck
Jack Snipe

Duck nest boxes have been erected on the Lake, and there is no doubt some breeding of waterbirds in these each spring.

The surrounds were well cared for, with the grass surrounds mown; some tree planting has taken place, but one would like to see more cover-shrubs planted at the water's edge.

At this time of the year, the water is low, although it is far from dry, a condition which occurred there in past years.

One tree of interest, a Eucalypt species with large, knobby fruits was identified as the Grampians Gum.

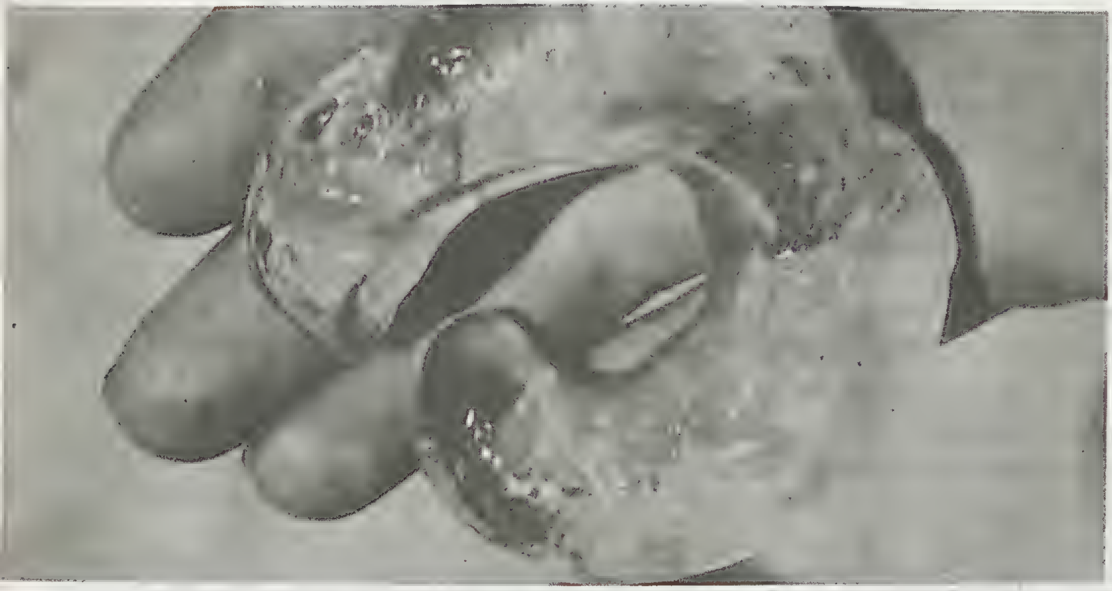
* * *

From Lake Lorne, the excursion moved to The Basin, a deep gully south of Drysdale.

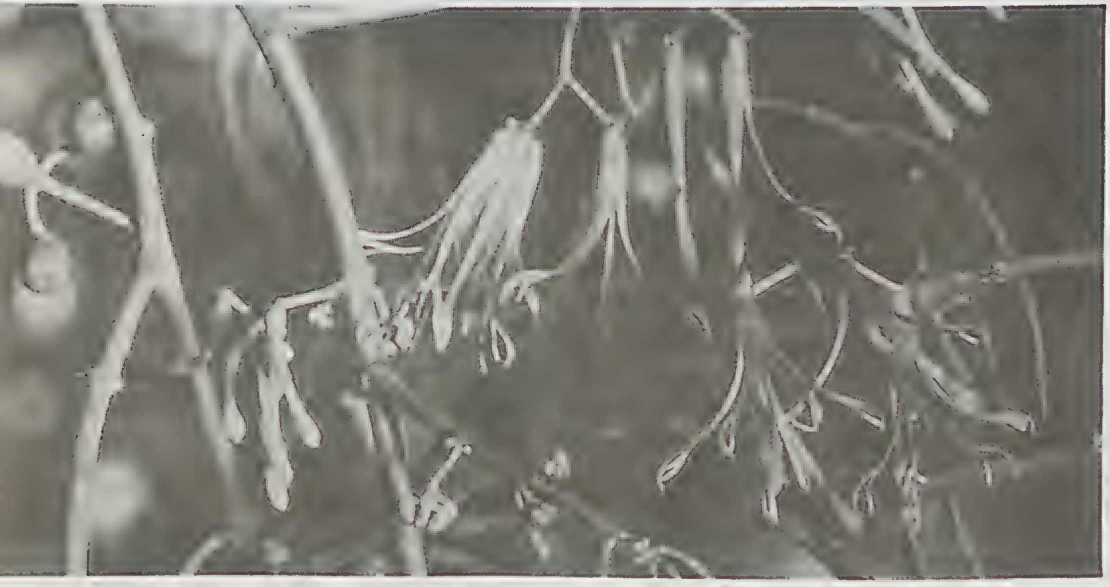
Vegetation was mainly Manna Gum with Bracken ground cover, providing ideal habitat for a range of native birds; seen here were White-plumed Honeyeater, Dusky Wood-swallow, Blue Wren, Black-faced Cuckoo-shrike (with young), Willy Wagtail.

This area was "new" to most on the excursion, and all voted it a most delightful spot well worthy of preservation.

* * *



EGG MASS OF SAND SNAIL



NEEDLE-LEAFED MISTLETOE IN FLOWER
photos by Trevor Pescott

EXCURSION TO EDWARDS POINT (Cont'd.)

Next stop was on the top of the hill at Murradoc Road, where an excellent view of Swan Bay is obtained; Edwards Point and Duck Island, a Wildlife Refuge of 350 acres are at the north end of the Bay.

Then down into St. Leonards and on to the entrance to the Reserve.

Before lunch, there was sufficient time for a beach walk, and here a wonderful range of seashells were to be found; the horse-shoe shaped jelly mass of the Common Sand-snail was found, and several specimens of the shell of this mollusc were found for comparison.

Mussel shells, covered with the empty calcereous cases of worms, were plentiful, and one particularly fine specimen was found and photographed.

Also of interest was a "wreck" of Toadfish - perhaps 20 fish washed onto a few yards of beach, and some specimens of a species of Ray or Skate.

After lunch, members walked down to the end of the "East Arm" of Edwards, or Black Billies Point, noting along the way fine stands of Wirilda Wattle, Needle-leafed Mistletoe and Coast Teatree, along with many other plants.

Insects were fairly plentiful, and several Ring-tailed Possums were seen.

Birds provided the most interesting sights, however, the following being the most notable species:

Silvereye
Striated Field-wren
Grey Fantail
Little Pied Cormarant
Pacific Gull
White-browed Scrub-wren
Little Stint
Brown Goshawk
Goldfinch
Black Swan
Silver Gull
Red-capped Dotterel (nest, egg)
Mongolian Dotterel
Sea Curlew
Brown Thornbill
Blue Wren
White-fronted Chat
Tree Martin
Golden Plover
Curlew Sandpiper

Highlight was a flock of 43 Royal Spoonbills.

* * *

Edwards Point is a valuable Reserve, and it is vital that fencing of the north end be completed as soon as possible; the area is frequented by wading birds of wide variety, including species which regularly move between Mud Islands and Swan Bay.

CARE OF WILDLIFE - A TIMELY WARNING

By Jack Wheeler

Too many birds and animals are finding their way into backyards as pets, so much so that naturalists are concerned that in most cases the procurement is illegal and further more, the creature eventually becomes an encumberance and is allowed to wander.

Three instances of creatures wandering in suburban streets recently came under my notice, and it is apparent that in each case they should never have been there, and that they were escapees from back yards and each was a protected species.

Two magpies, both of this years nesting, were found wandering in suburban streets, each at least eight miles apart, and both had their wings cut. It would appear that the original keepers of these birds had gone on holidays and had left them to fare for themselves whilst they were away enjoying themselves, but the magpies had become so dependant on humans for their source of food supply that they soon became very hungry, and commenced to wander. At this stage they become easy victims to strange dogs and suburban traffic and could easily be maimed or killed, being unaccustomed to such dangers.

There are far too many people in the world today, who on seeing a wild creature cannot resist in leaving it be, but their first thought is to capture it, take it home and care for it, thinking they are doing the right thing.

The most common of such instances is the baby magpie which has just left its nest and is learning to fly. People see a young maggie on a fence post or on the roadside, and no sign of any parents, just can't resist taking it and so it ends up in the car, taken home, its wing cut to keep it from flying, a most cruel practice, and so it becomes the pride and joy of the children and the family pet.

First of all, was the young magpies deserted by its parents? The parents do not always remain in the immediate locality of the youngster, and in most instances could be quite some distance away fossicking for food for their youngsters, and in most cases there are up to three and four youngsters to be fed.

CARE OF WILDLIFE - A TIMELY WARNING (Cont'd.)

The creature of course is not always the common magpie and can be something which is not so common, such as an echidna or spiny anteater, and when seen in the bushland or on a roadside, people cannot resist poking it with sticks and eventually capturing it to take home for the kids to see. Many people do this entirely out of ignorance. They will argue most emphatically that knowing that the creature was quite healthy and in its own environment, but by takin g it home it would be an exciting pet for the family, or may argue that it would be an asset to a zoo or private sanctuary.

Unfortunately there are too many private zoos and sanctuaries obtaining our native creatures and keeping them in not always ideal conditions. I was disgusted recently on visiting the Bacchus Marsh Lion Park where several kangaroos were kept in an enclosure where the ground was as bare as a board and the animals themselves showing the results of unnatural surroundings. These so-called 'Lion Parks' also appear to be mushrooming, and must we have one in every State? They show a tendancy to become more like zoos with a far greater variety of animals than just lions.

Recently I was aksed to identify a very young bird, no more than two days out of the shell. It was the young chick of a pair of Eastern Swamphens and was found in some reeds near water by some children who captured it thinking that it was deserted by its parents. This was most unlikely as swamphens are devoted parents and can take care of their brood.

The tragedy of this instance was that the children could not remember the exact locality where they found the bird for it to be returned. So the chick ended up in the hands of Andrea, a girl of mature age and she set about trying to rear it. It was provided with a bed of cottonwool on a hot waterbag, and fed by an eye-dropper. It lived for only 24 hours.

Young Kookaburras are another species which are easily caught when learning to fly an d they also find their way into suburban back yards and in most cases become unwanted pets because of the cost of providing them with the raw meat required for their diet.

In cases where people come across quite healthy creatures, whether it be a young bird such as a magpie or kookaburra, or

CARE OF WILDLIFE - A TIMELY WARNING (Cont'd.)

even an echidna, please remember that it is far better to leave them alone to go about their own way of living undisturbed as 'Mother Nature' can take care of her creatures quite capably without human interference.

In the case of an injured creature, then it is another matter, and if it is of a species which is on the protected list, and most creatures come under this category today, it is best for you to contact your local Fisheries and Wildlife Officer and he will advise you on the matter.

* * * * *

THE FIGHT TO SAVE OUR KANGAROOS GOES ON OVERSEAS

By Jack Wheeler

A Senate Bill to prohibit the importation into California, U.S.A, the dead body or any part or product thereof and the sale and possession with intent to sell endangered species, including kangaroos, is soon to be law in that State. (This action is reported to have been opposed by the Australian Consul General).

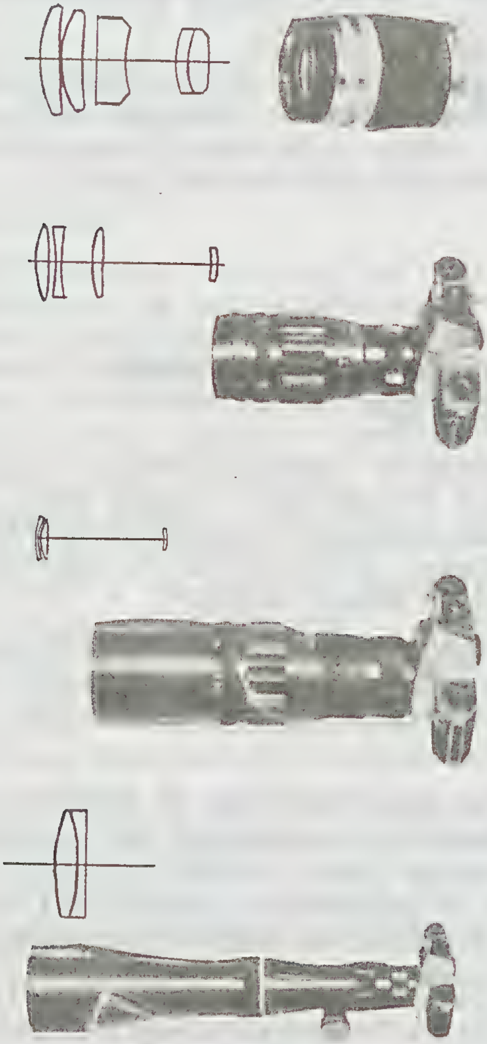
In Holland following the filming of the film "Wake in Fright" the authentic hunting scenes disgusted and horrified thousands of resulted in a petition with 2000 signatures against commercial killing of our kangaroos.

In Switzerland, the World League for the Protection of Animals is conducting a campaign for the protection of kangaroos and petition forms sent to 18 different countries written in German, French, Spanish and Dutch. Migros, a firm in Switzerland with 23 chain stores was the first in the world to withdraw kangaroo products from sale.

The Pan American Airways will actively support the World Wildlife Fund in its efforts to preserve animals listed as being on the danger of extinction. The airline will not offer any tour programme involving the killing of animals which the fund has classified as endangered species and this includes our kangaroos.

Qantas, Australia's international airline will no longer serve Kangaroo tail soup on its flights and has never used kangaroo-paw bottle openers. (K.P.C. Newsletter, Dec.1971).

PHOTOGRAPHERS!



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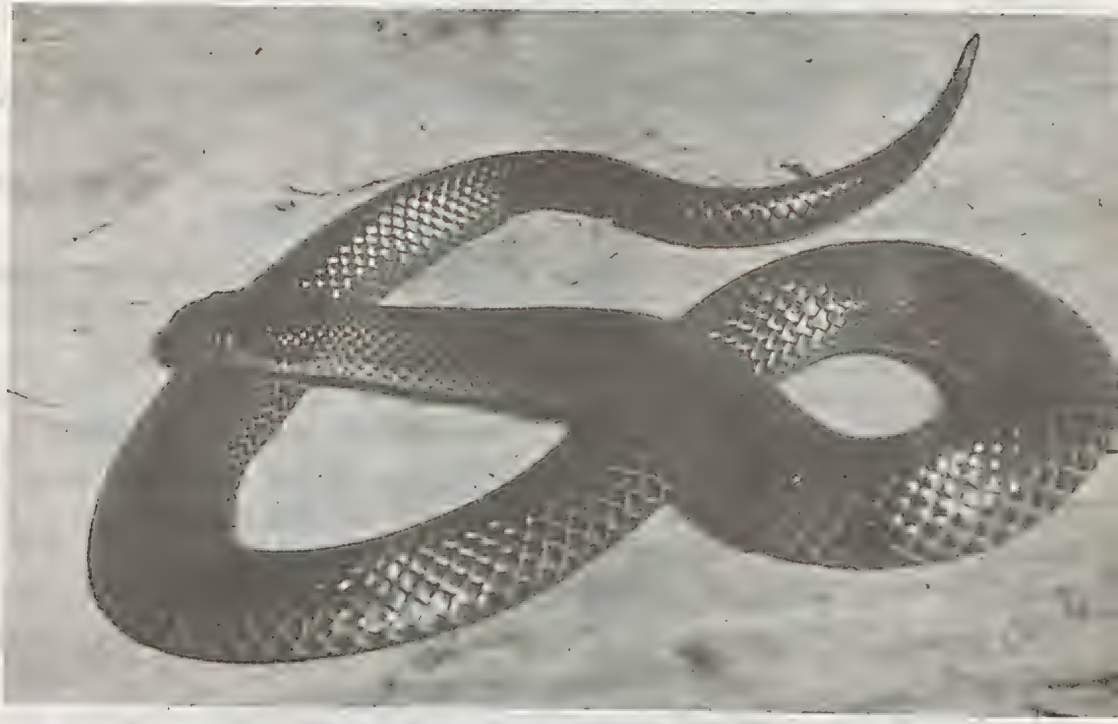

LITTLE WHIP SNAKE

photo by Trevor Pescott

The Little Whip Snake shown in the photograph above is one of the most plentiful snakes in the Geelong district; it is not found away from the southern Victorian and eastern South Australia region, however, so it is really a rather rare species when we compare it with the Tiger, Brown and Copperhead Snakes, all of which are found locally.

Rareity of an animal or plant does not only mean that there are few of them; it means too that the area over which they are found is small and limited, even though there may be good numbers of

JUNIOR PAGES (Cont'd.)

individuals within the range.

The Little Whip Snakes are venomous, and although they are not generally thought to be dangerous to human beings, if they are handled, care should always be taken.

They are poisonous enough to kill quite quickly small animals like mice, but it is improbable that they could harm anything as large as a rabbit.

Whip snakes grow to nearly 20 inches long, although the ones we generally see are only about 12 inches in length.

Unlike some snakes - the Common Brown and Carpet Snake for example - Whip Snakes do not lay eggs, but give birth to about 4 young.

Baby Brown Snakes have dark heads rather like Whip Snakes, but they do not have the light spot across the head just in front of the eyes, and they are slenderer and duller than Whip Snakes

There are several other species of snakes which are like Whip Snakes to look at - but these are found in the Mallee and Desert country in northern Victoria; they have the dark head and same very shiny body similar to the Whip Snake.

Insects and little lizards are the food that all the small snakes eat.

Whip Snakes live under stones, bark, sheets of iron, and so on, and may be found all around Geelong in the grassland and open bush.

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Visitors Welcome

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